Landings from Outer Space—See Inside

meccano magazine

April

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1965

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- Build and fly 'Stardust'

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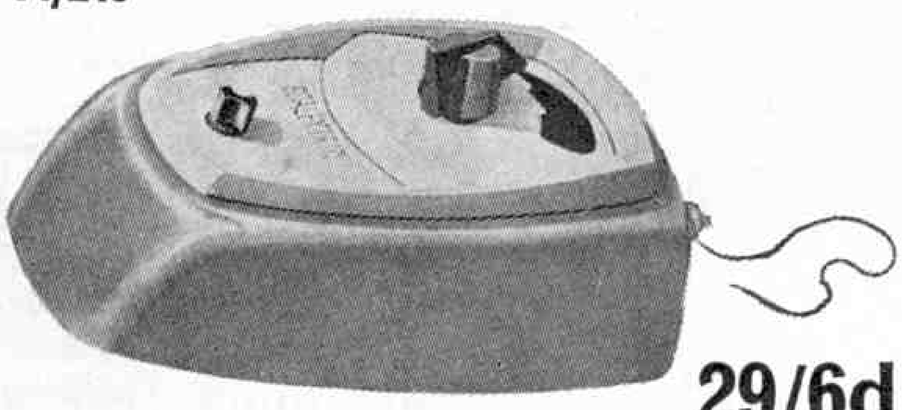

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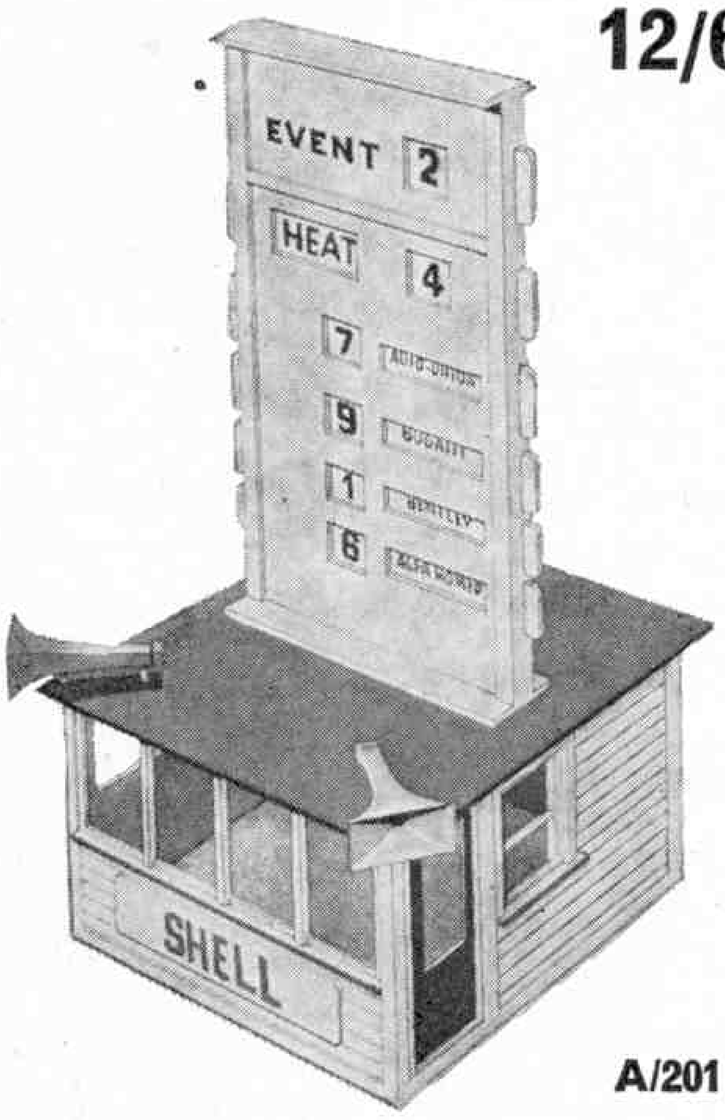

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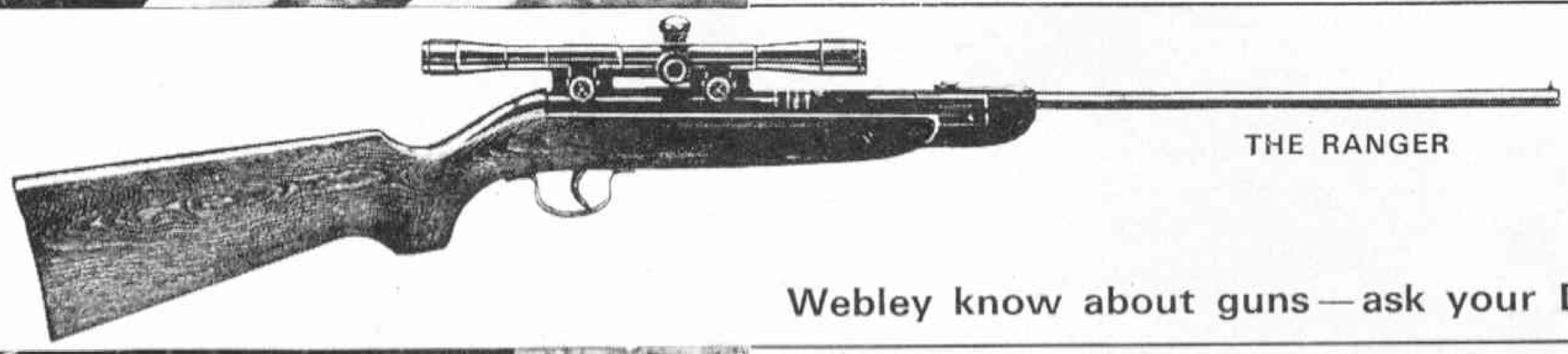

THE RANGER

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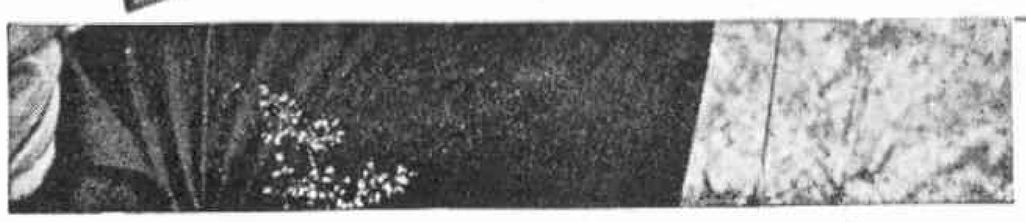

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meccano magazine
THE PRACTICAL BOY'S HOBBIES MAGAZINE

AEROMODELLING □ RADIO □ ELECTRONICS □ CAMPING □ CYCLING □ STAMPS □ FISHING

Editor Charles E. Deane; **Design** R. S. Sodhi; **Advertisement Manager** Tony Johnson; **Head Office** Thomas Skinner & Co. (Publishers) Ltd., St. Alphage House, Fore Street, London, E.C.2. Phone: NATional 4050. Grams: Desollar, London, E.C.2; **New York** 111 Broadway, New York City, U.S.A.; **Ottawa** Suite 35, 75 Sparks Street, Ottawa, Ontario. *© Meccano Limited 1965*

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April 1965 · Vol. 50 · No. 4 · Monthly

Buying and Selling

HAVE you a stamp collection, model train or car layout? If so, it is quite likely that you will eventually want to sell spare equipment or buy difficult-to-obtain bits and pieces. The problem is, where can you obtain or sell this equipment?

Surprisingly, you are holding the solution in your hands, for at the back of Meccano Magazine is a special readers' sales and wants page where all manner of odds and ends can be bought, sold or exchanged. A simple word-by-word advertisement application form is also included making the task of sending in an advertisement very easy.

It costs only a few shillings to place an advertisement in the sales and wants column, so why not make money now by selling those unwanted spares or collections? There are thousands of model enthusiasts reading M.M. and you can be sure that somebody will want and find your old equipment useful!

While on the subject of buying and selling, I thought it might be a good idea to show you some of the latest models and toys which I saw at the Brighton Toy Fair 1965. Two pages of window shopping appear in this issue of the magazine to illustrate some of the many new items which will be on sale in your local hobby or toy shop during the year. (See p. 28).

Brighton Toy Fair was like a boy's dream come true, with row upon row of bright new gleaming toys all waiting to be set in motion. Raceways, model train layouts, model aeroplanes, steam engines, six shooters and model cars are just a sample of the thousands of exhibits. Yet, there was not a boy or girl in sight!

The people who played with these models and toys were grown-ups who came from all over the world to exhibit and buy toys at the Exhibition. One of the more interesting do-it yourself kits at Brighton was the electronic assembly kit made by Radionic.

Build your own radio

With this kit it is possible to make transistor radios, a record player, a short wave receiver, in fact, numerous different electronic units. All of these units are working models built from a basic kit of radio components and I was so impressed with the Radionic kit, that next month we will be featuring it in a special article of short wave receiving.

There are many young enthusiasts who listen in to conversations taking place between amateur radio stations (hams) hundreds, sometimes thousands, of miles apart. It is a very interesting hobby and the young boy on the front cover of this issue has his own short wave receiver in his bedroom at home.

Admittedly, it isn't a Radionic set, but he finds the fun he has with this set bought cheaply from an army surplus store, can be just as great! As can be seen by the cards on his bedroom wall, he writes and receives radio cards from all over the world.

If you're interested in radio, then tune-in to next month's issue of Meccano Magazine. I am sure that you will find it very interesting.

The Editor

Front Cover:

Short wave receiving is a very interesting hobby! This boy has his own receiver in his bedroom. Next month, Meccano Magazine will contain an article on this absorbing subject.

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LANDINGS FROM OUTER SPACE

NASA'S wingless wonders solve space travel problems for America

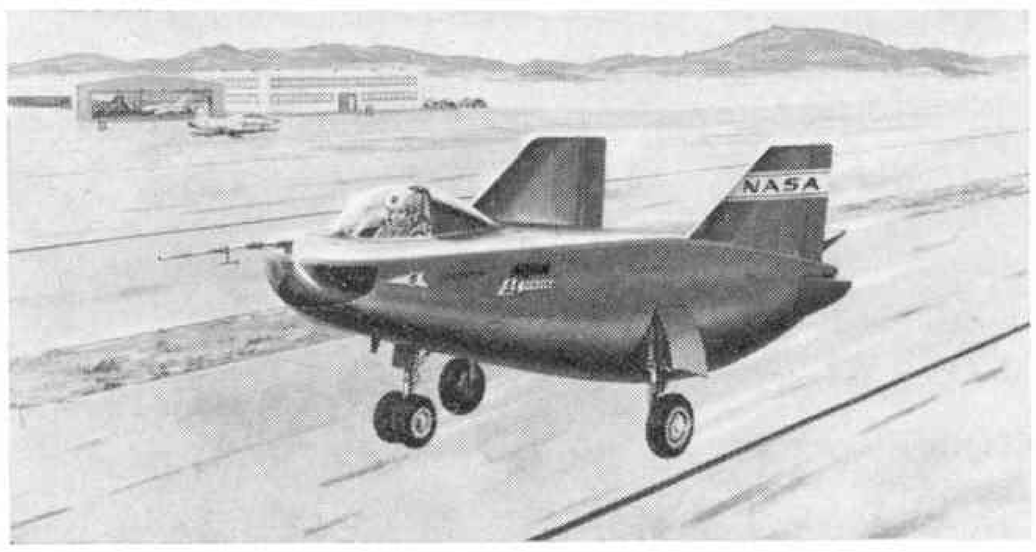
IT may be only a few years before the first manned space-stations are put into orbit around the Earth. On board, scientists will be able to perform experiments in zero-gravity conditions and astronomers will be able to study the universe beyond the veil of our atmosphere. But this will be possible only if men, supplies and equipment can be ferried regularly between the Earth and the space-stations.

In February, I wrote about the new American F-111 fighter which changes its wing shape in flight. This month, we will take a look at a pair of even-stranger aeroplanes which have no wings at all. They are known as lifting body research vehicles and were devised originally by scientists of the U.S. National Aeronautics and Space Administration (NASA) who had to find the best way of getting astronauts back to Earth after a journey into space.

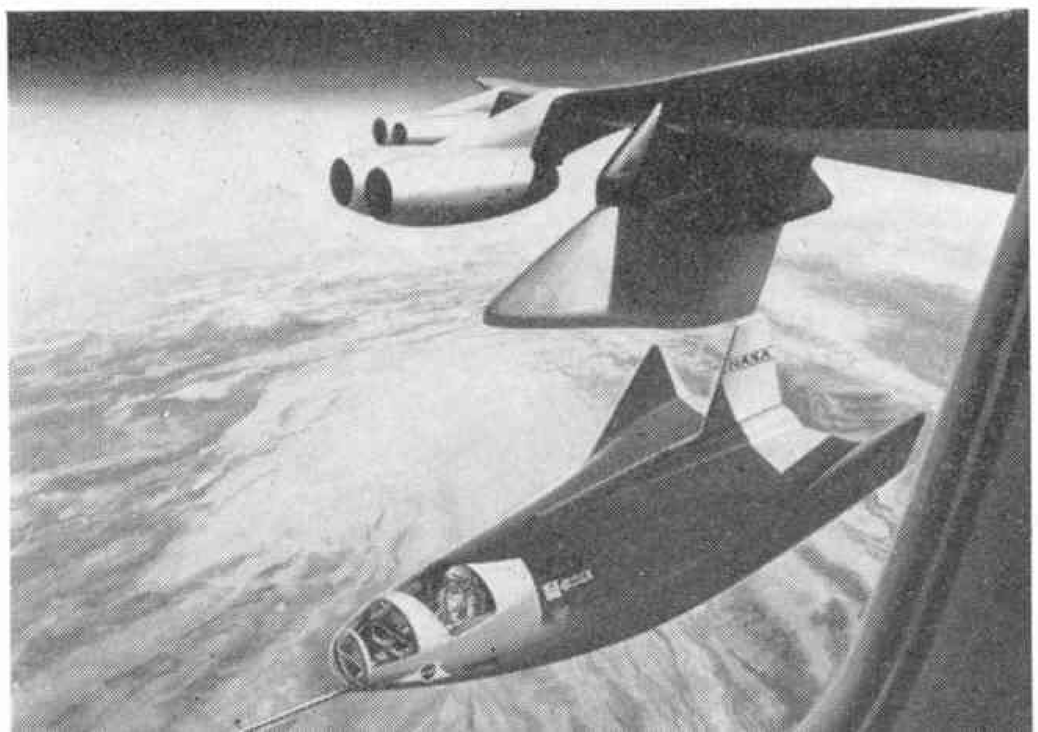
The American astronauts who were put into orbit under the Mercury man-in-space programme ended their journeys in the sea. Fleets of ships, aeroplanes and helicopters were needed to spot their space-craft as they came down by parachute and to recover them from the water. This was acceptable for the first experimental space-flights, but would be far too complicated and costly as an everyday routine.

Space-station ferry-craft must, therefore, be designed so that they can be steered through the atmosphere and landed at aerodromes on the ground; but this presents serious problems. To start with, a ferry-craft must be compact enough to fit on the nose of the rocket that will launch it into orbit on the outward journey to the space-station. Then, it must have wings, or some other form of lifting surface, for the return trip. Ordinary wings might be

Gliding in to land! A drawing of the wingless M-2.



Launching the HL-10 from a B-52 bomber at 45,000 feet.



rather clumsy and would certainly be heavy, as they would have to withstand enormous stresses and temperatures as the craft re-entered the atmosphere at around 18,000 m.p.h.

Early design envisaged the use of some kind of thick delta wing, blended into the fuselage to give a "flying wing" layout. Then, scientists at NASA's Ames Research Centre suggested that it might be possible to have a flying fuselage rather than a flying wing. This sounded a little frightening and the test pilots at Ames must have been startled when they saw the first model of the proposed aircraft, without any wings at all.

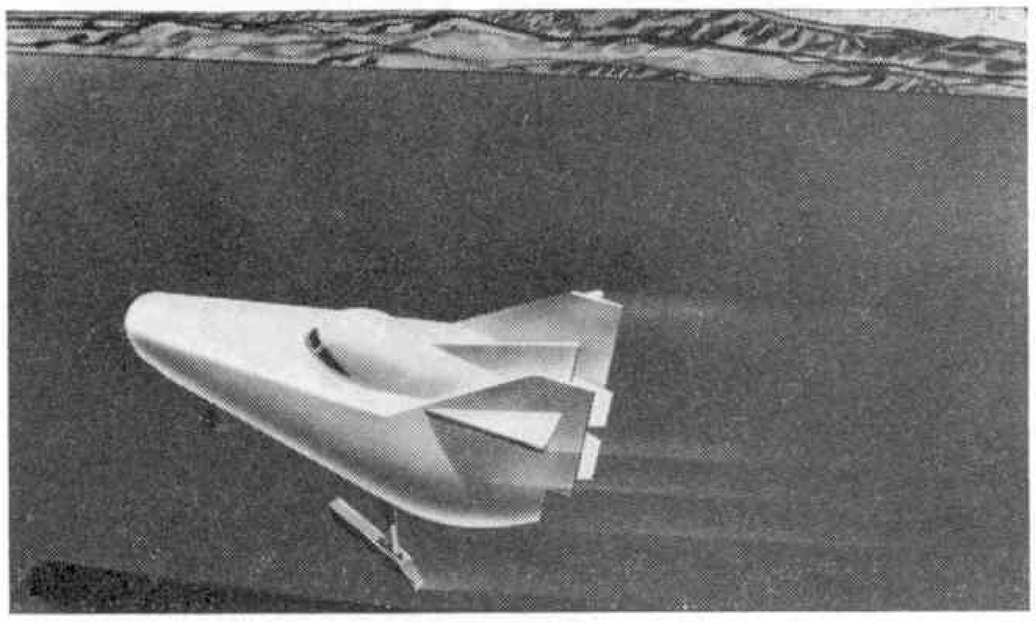
Basically, it was shaped like one half of a cone that had been split down the middle, with the flat side on top and the curved side forming the bottom of the fuselage. The nose was rounded to reduce heating during re-entry into the atmosphere and the rear end was flattened underneath and tapered upward.

Wind-tunnel tests showed that this strange shape was not only stable at extremely high supersonic speeds but gave plenty of lift for landings at low speeds. There was also plenty of room inside it for a pilot, fuel, engines and equipment.

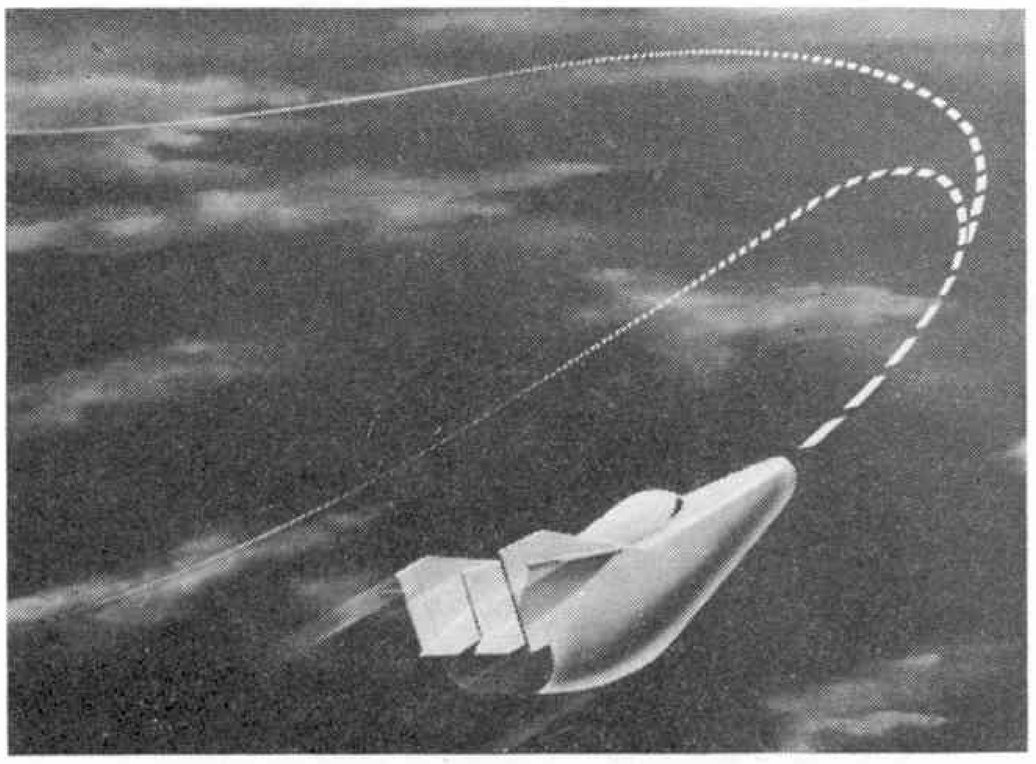
Full-scale prototype

Having proved that their "flying bathtub" was safe enough for a pilot to fly, NASA built a full-scale unpowered prototype, which they called the M-2. After wind-tunnel tests. this was sent to Edwards Air Force Base, California, for flight trials. With NASA test pilot Milton Thompson at the controls, it was first towed behind a motor car at a height of about 10-15 feet above the ground; and even hardened test pilots rubbed their eyes in disbelief when they saw for the first time that an aircraft could fly perfectly well without wings!

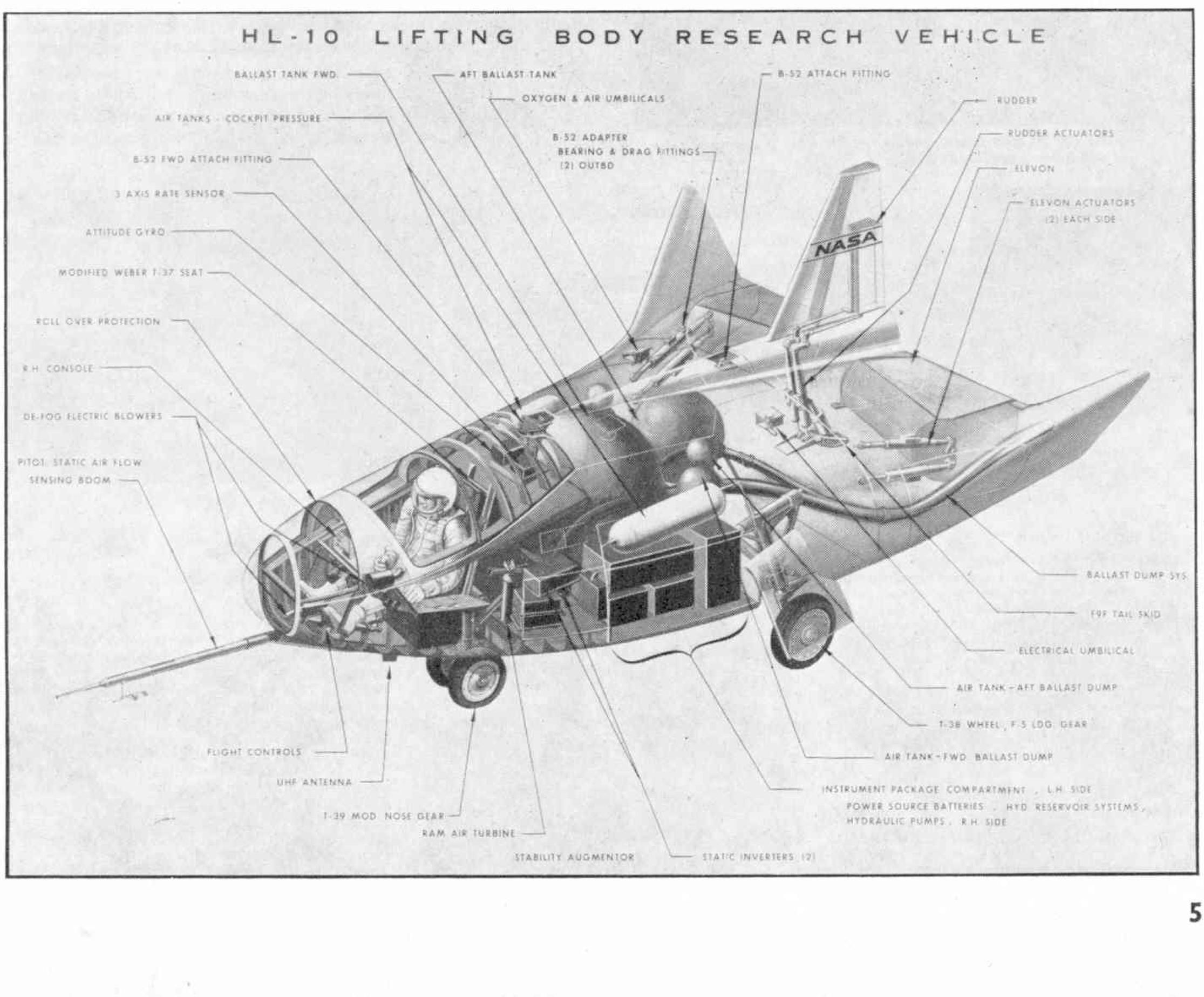
Next, the M-2 was towed into the air by a Dakota and released at 13,000 feet. Speeds of up to 135 m.p.h. were reached during the descent, but Thompson had no difficulty in slowing the aircraft by

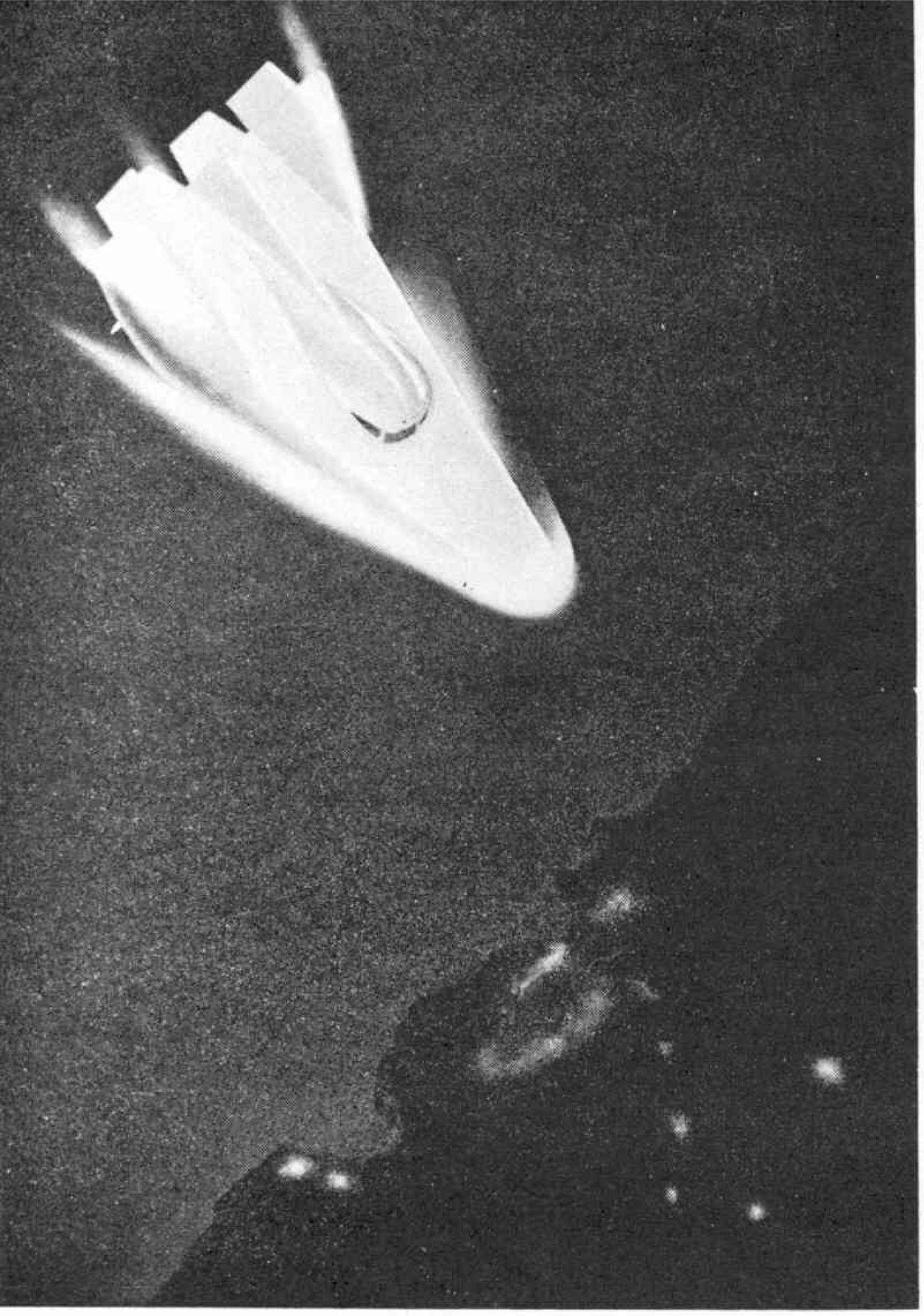


Skis may be used to land the M-2 on water!



Manoeuvrability is one of the M-2 spacecraft's advantages.





On entering the Earth's atmosphere, the spacecraft will glow red hot due to friction with the air.

raising the nose and, three minutes after release, the M-2 made a good landing on its fixed tricycle undercarriage, coming to a halt after a run of only 250 feet.

Dropped from 45,000 feet

Satisfied that the M-2 is a perfectly practical aircraft, NASA has now ordered a much more elaborate version for testing at higher speeds. The original prototype flown by Milton Thompson in 1963 was built as simply and cheaply as possible of wood, just to prove that the idea worked.

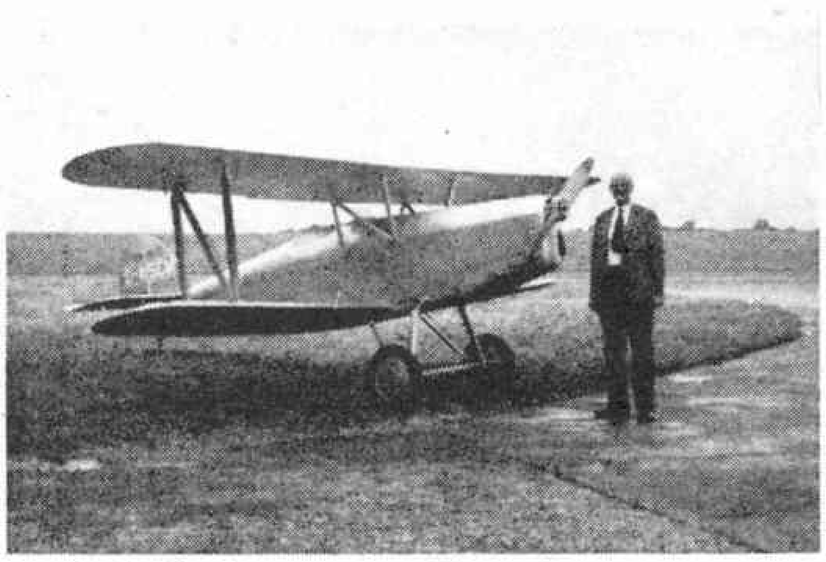
The new M-2, being built by the Northrop company, is an all-metal aircraft, built like a normal aeroplane, with a retractable tricycle undercarriage and a pressurised cockpit containing a rocket-powered ejection seat. Flying controls consist of two elevons built into the upper surface of the tail to raise the aircraft's nose, a flap beneath the tail to make the nose drop, twin rudders and an air-brake on each side of the rear fuselage.

The M-2 should be completed within a few weeks and flight tests are scheduled to begin in the Summer. Initially, the aircraft will be dropped from a Stratofortress mother-plane from a height of about 45,000 feet, without an engine. After gliding down, it is expected to land at about 175 m.p.h., at a nose-up angle of 15 degrees. Later, a rocket-engine will probably be fitted and the M-2 will then be capable of speeds up to 1,320 m.p.h., or twice the speed of sound at 70,000 feet.

Another model planned

It will be joined later this year by a second lifting body research aircraft known as the HL-10, designed at NASA's Langley Research Centre and also built by Northrop. This "wingless wonder" differs from the M-2 mainly in having the flat side of its half-cone body underneath and the curved side on top. Its controls are also different, consisting of two very thick elevons, extending the full depth of the rear fuselage, and a single central rudder, which also splits sideways in two halves to act as an air-brake.

Of all the fantastic aircraft tested at Edwards since the war, the M-2 and HL-10 must surely be the most weird: but before the end of this century craft of similar shape may become quite familar as they fly men and materials to and from laboratories in space.



Mr. John Isaacs with his scale Hawker Fury.

The first of the R.A.F. Hawker-Siddeley Dominic jets.

Do-it-yourself flying

Homebuilt aircraft are flying in hundreds in America. The hobby is catching on more slowly over here, but there are already some very interesting machines in the air or under construction. Typical is the little Fury biplane built by Mr. John O. Isaacs of Southampton and shown in the adjacent photograph. Powered by a 65 h.p. Walter Mikron engine, it is a 7/10th scale wooden replica of the famous Hawker Fury single-seat fighter of the 1930's. Wing span is only 21 feet and take-off weight is 800 pounds, including the pilot. The Fury has a top speed of 87 m.p.h. and can fly for nearly three hours at 75 m.p.h.

A knockout

A fishy story from down under shows that human beings are not the only ones who have cause to complain about aeroplanes "breaking the sound barrier". It seems that when a Royal Australian Air Force Mirage fighter dived at supersonic speed over the sea recently, a school of mullet rose to the surface and floated, stunned, for a minute or so before diving back to the depths. Unfortunately for many of the mullet, there happened to be some fishermen in the area at the time, and they ended up on a plate surrounded by chips, having been fished out of the water before they could recover.

Scratching around

Strange cargoes are encountered frequently by airline freight handlers, but a ground crewman at New York had good reason to feel alarmed when he noticed one bag that was not only unlabelled but also vibrating. Local police, the F.B.I. and the airport fire brigade were called in and the bag was removed quickly to an isolated part of the airport. Just as firemen were about to open up with their hoses, the owner of the bag arrived. Watched closely by the police, he opened it up to reveal two battery-operated back-scratchers!

Dominic's maiden

Seen on Maiden flight here is Hawker Siddeley 125 Dominic T. Mk. I twin-jet aircraft for the R.A.F. It is powered by two rear mounted Bristol Siddeley Viper 520 jet engines. Replacing the large twin engine propeller aircraft used for navigation training it is also capable of performing a number of military roles with great economy. With basic accommodation for an instructor and two pupils, in addition to two pilots, it is eminently suitable for Ambulance/Freighter duties with seating for up to ten passengers. Similar in looks to HS 125 business aircraft except that the wing centre section fairing is extended forward as a housing for electronic equipment.

John W. R. Taylor

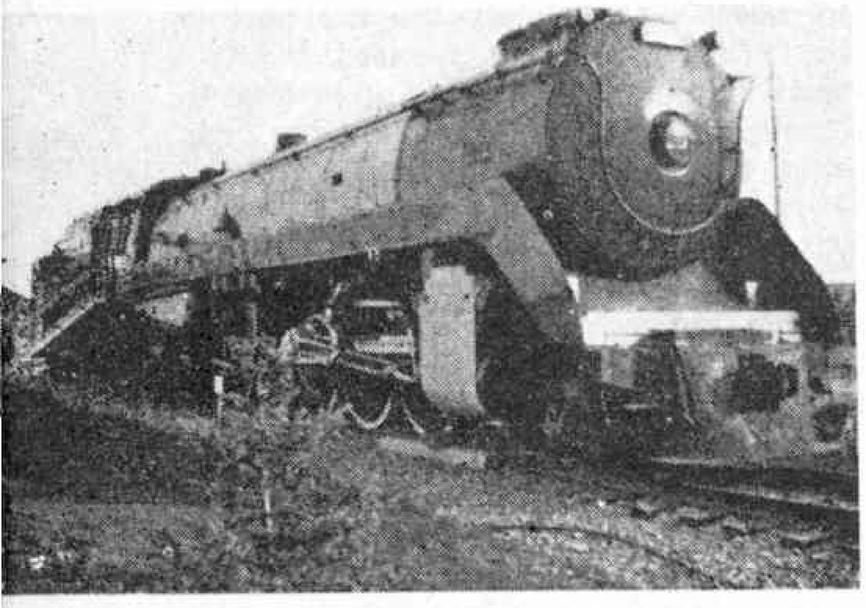
mailbag

Anything interesting . . . write about it to the editor

ANOTHER LEANING TOWER—One of the most spectacular of the leaning church towers in Britain is that of Temple Church, Bristol. The lean is quite pronounced as the top of the tower overhangs its base by five feet.

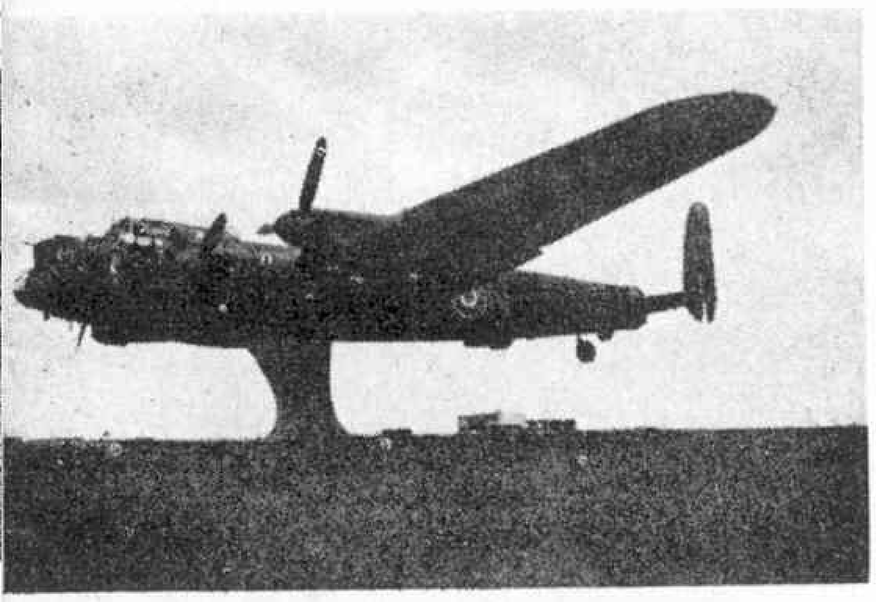
The present church was mainly built in the fourteenth century and almost from its construction date was famous for its eccentricity. In the sixteenth century, it was a standard trick to crush small stones to powder by wedging them between the church wall and the tower while the bells were ringing. In the early nineteenth century, a variant of the rocking tower game was to allow a bowl of water placed on the tower to empty itself as the tower swayed to the ringing of the bells.

The main body of the church was ruined by bombing during the last war, but the tower stood firm and is now protected by the Ministry of Works.—*B. Malone, Clifton, Bristol.*



A powerful 'mountain' type locomotive of Canadian Railways, now retired at Calgarry.

One of the last of the famous World War Two Lancasters mounted at McCall Airfield.



A BALLOON BOILER—This photograph, taken about three years ago, shows a balloon boiler in the fields near Denby in Derbyshire, just before it was taken to the London Science Museum. There it is hoped to put it beside an old beam engine of the type it used to power and which came from a colliery in the same area.

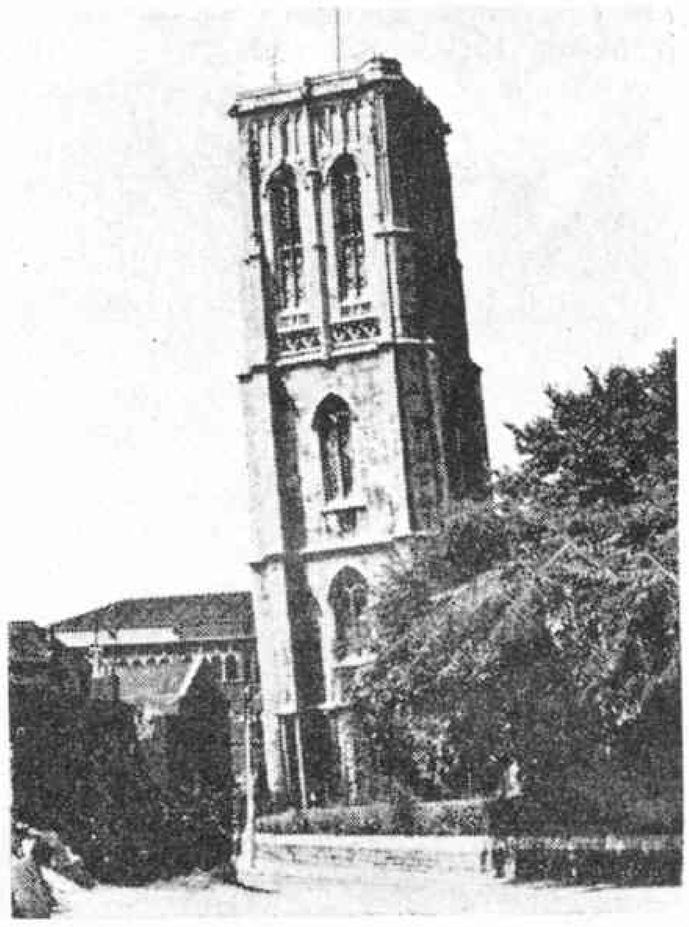
Believed to be the only one of its kind left in the world, the boiler is about seven feet in diameter and made of wrought iron. Thought to have been made in 1800, it was scrapped in 1885 and nobody knows how it came to be in the fields some distance from the collieries. Perhaps it's because it is sometimes called a 'haystack' boiler.—*F. Rodgers, Allestree, Derby.*

A LIGHT ELEPHANT—The 'old lighthouse' on Lundy Island in the Bristol Channel must be a rare example of error on the part of Trinity House, the organisation which maintains all lighthouses, lightships and buoys around Britain's shores.

The old Lundy lighthouse was erected in 1820 and finally abandoned in 1896 as, situated in the main area for low cloud over the island, the lantern was frequently obscured.

This, of course, meant it was rendered useless during the weather conditions for which it was so badly needed.—*L. Gowan, Beech Grove, Whickham.*

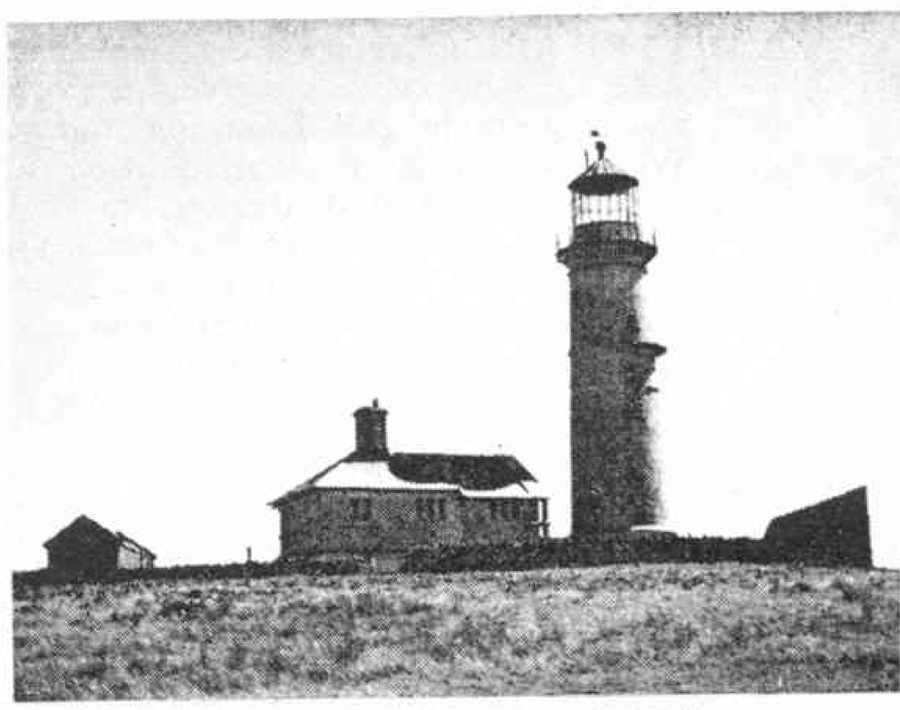
The leaning tower of Temple Church, Bristol.



TRAINS AND PLANES—Although my family and I emigrated to Canada some nine years ago, I still continue to read Meccano Magazine which I have had since 1926.

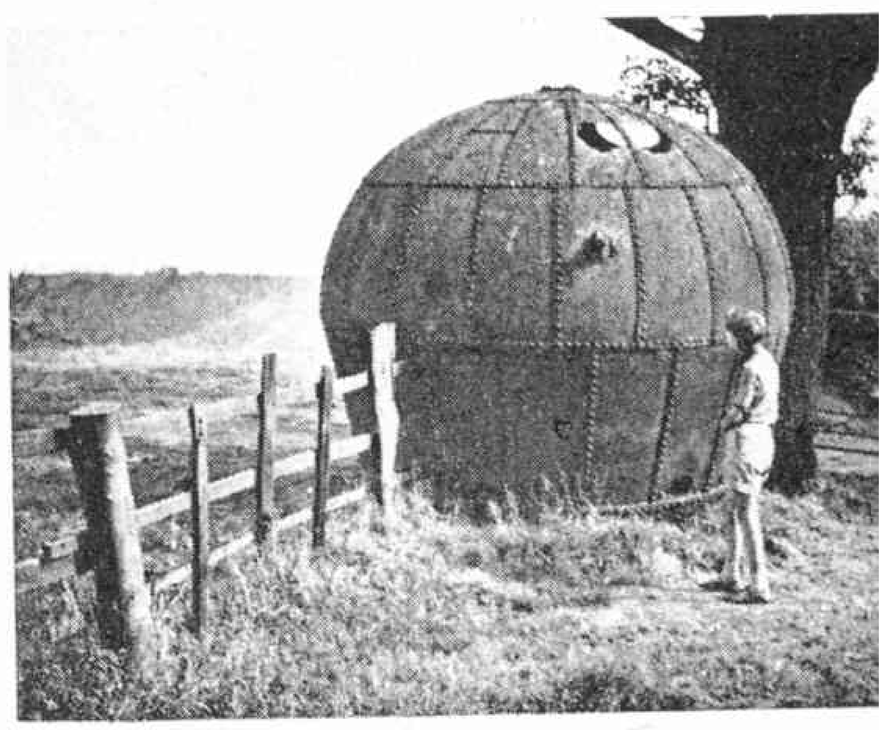
We moved from Kent to Calgarry, which is in Alberta. Some readers may have heard of the famous Calgarry Stampede, which is held for a full week, once a year.

Canada is a huge and fantastic country, certainly very different to England. I have enclosed two photographs taken in Calgarry. The first is for the train spotters—a 'mountain' type engine, now retired and resting at Calgarry and the second, one of the last Lancasters of World War Two mounted at Calgarry's McCall Airfield.—*G. Haselden, Calgarry, Alberta.*



The 'old' Lundy Island lighthouse which had to be abandoned due to its poor sighting.

A balloon boiler which was used to supply steam to the old colliery beam engines in Denby.



Build the s.s. British Sovereign

Robert Gore constructs a model of this super ocean-going tanker...

BRITAIN relies upon her merchant ships to carry life-giving imports and exports to and from our shores. With such a large population on so small an island, it is necessary to have much of our food and raw materials imported into this country from overseas. One of the most important raw materials to reach Britain is oil, for without it our complete transport system would grind to a halt.

How does oil travel to this country from the oil wells of the Middle East? The answer is given by the photographs on these pages. Oil is transported in large tankers such as the s.s. British Sovereign and although the British Sovereign does not have any actual sister ships there are other similar ships in the fleet of her owners. These are: British Engineer, British Merchant, British Sailor, British Soldier and British Victory, each having the same principal dimensions and cargo-carrying capacity. The overall lengths are 565 feet with a beam of 85 feet 6 inches. The British Sovereign was built ten years ago at Barrow-in-Furness by Vickers-Armstrongs Ltd., is powered by steam turbines giving a service speed of about 15½ knots, and has a 21,138 gross tonnage.

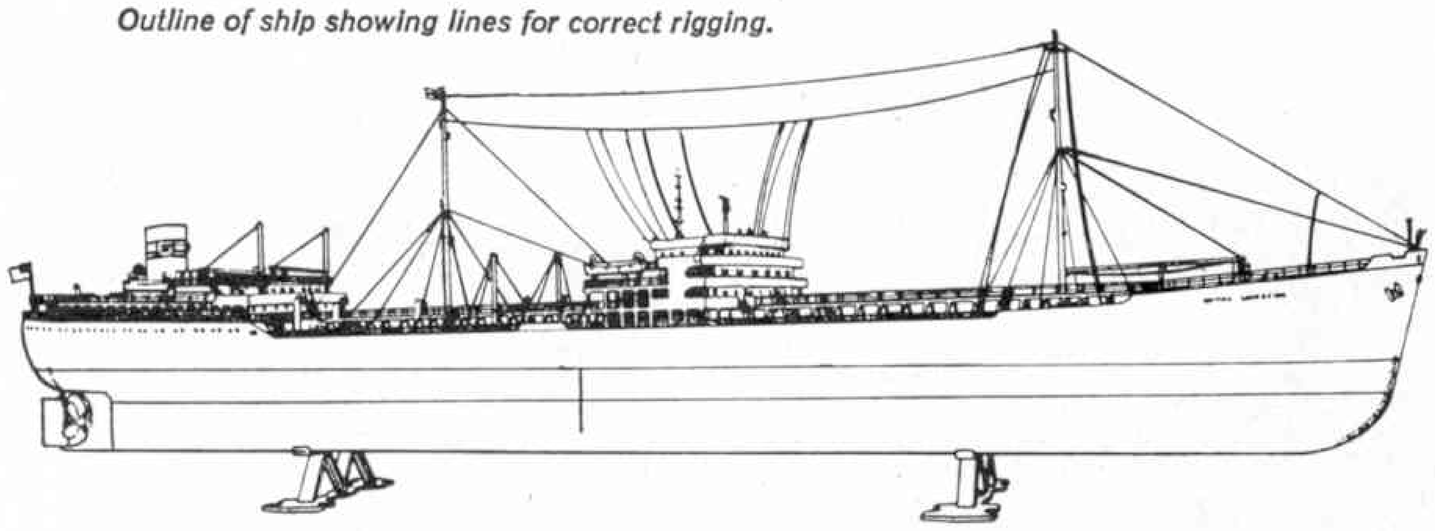
The model of s.s. British Sovereign shown here is produced by Messrs. J. & L. Randall Ltd., of Potters Bar, and is featured in their 'Merit' series. I found it to be one of the simplest to construct, principally on account of the minimum amount of painting required. This is because the hull and main deck are moulded in a dark reddish brown colour, the normal finishing colour of steel decks, with the upperworks being in white plastic. Only the top deck of the after superstructure needed just a small amount of white paint to tone in. Smaller details, such as hatches, etc., have to be coloured individually.

This is the only kit of which I am aware that is in two colours and by using modern quick-drying paints, you can have a model built from scratch and finished within a few hours. Matt paints dry quicker than gloss and tend to look more realistic. After all, if real ships have a shine on their paint when leaving the shipyard, the elements very soon remove it!

In the kit painting instruction a warning is given that "only suitable oil base enamel paints" should be used in order that the surface of the plastic does not become wrinkled by chemicals. I very

The complete kit of parts required to build the s.s. British Sovereign by Merit. The cost of this very fine kit is 15s. 11d. Including transfers.

Outline of ship showing lines for correct rigging.



much wanted to experiment in spraying the hull with one of the aerosol type of paint sprayers now on the market. The label said that it dried within a few minutes, rather like cellulose which I have used with success — and it dries faster, so I screened the lower part of the hull with adhesive tape and proceeded. It was quite easy to cover the hull, but when it dried I found, to my disappointment, that the plastic surface had wrinkled and had slightly damaged a small part where a 'run' had occurred.

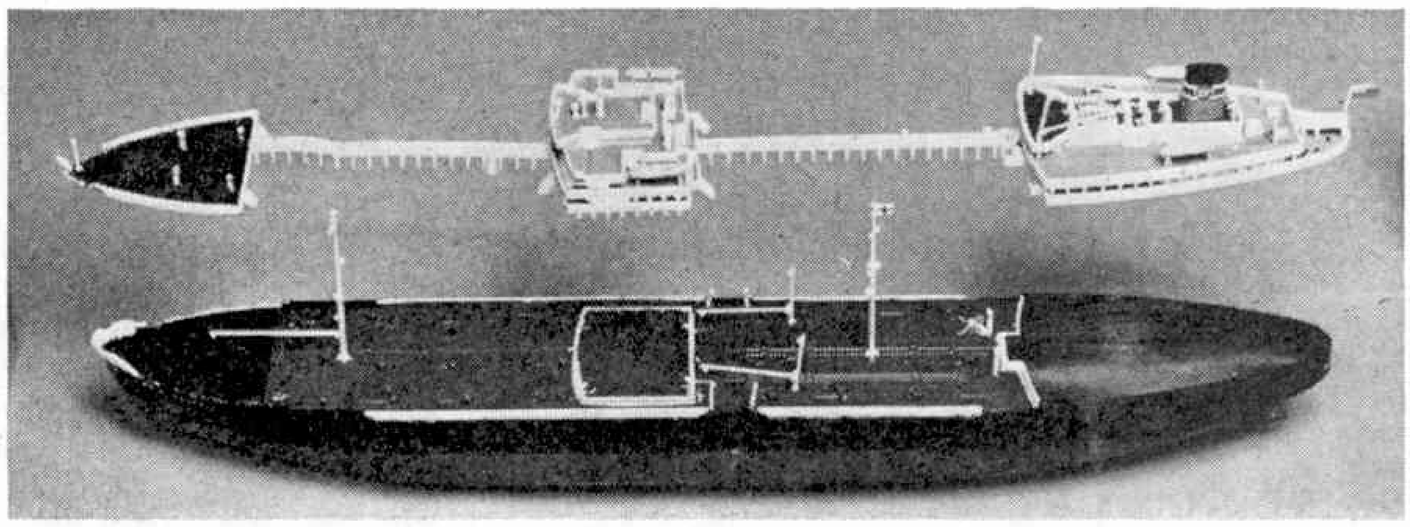
The remainder of the paintwork was done by hand from selections of suitable colours out of the wide range of over 30 shades made by the Humber Oil Company. These are marketed in those attractive little ½ fluid ounce tins under the name "Humbrol" and sell for the reasonable price of 9d.

While still on the subject of paint, one feature of the British Sovereign's instruction leaflet that appealed to me was the convenient manner in which parts of the same colour were listed together. This avoided the need to keep opening and using tins of different colours during the construction.

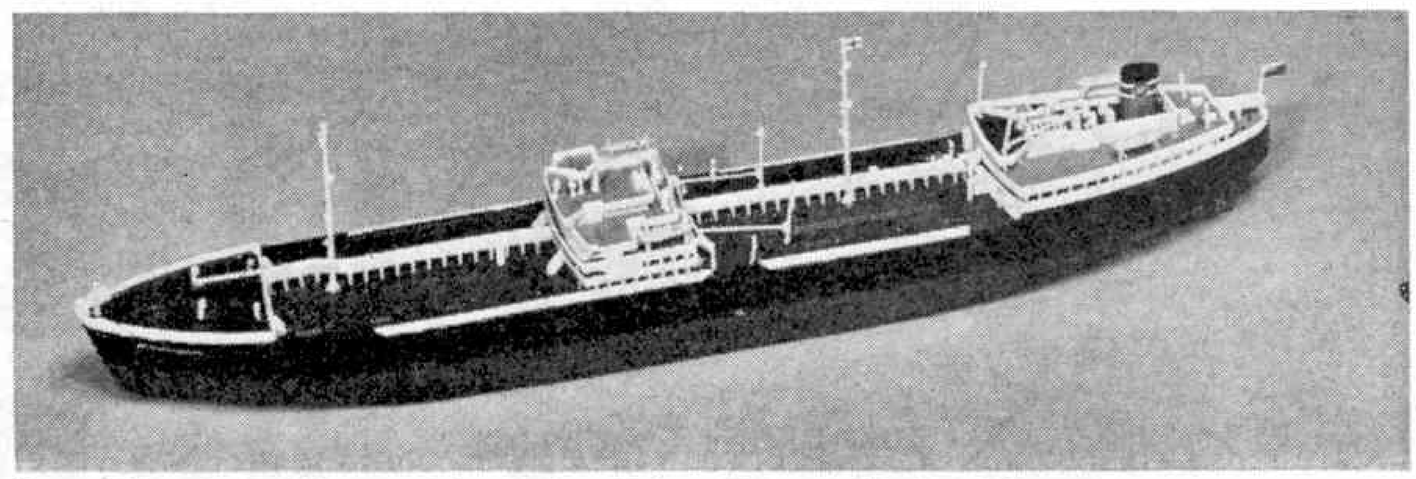
Tips on assembling

Normally, instructions take you through the building programme by stages and although these are in a slightly different form to other kits, they are, nevertheless, clear and well illustrated by a large exploded-view drawing. A few minor difficulties were encountered, however, so a few words may help.

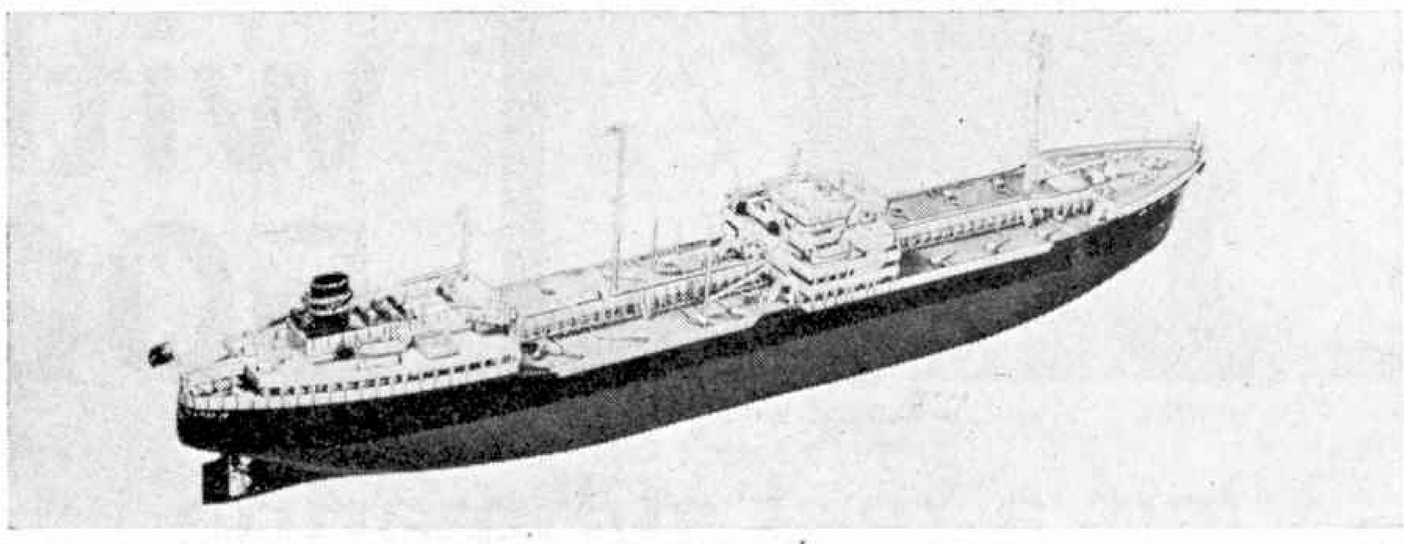
At Item 24—the funnel—it was not clear whether the transfer of the markings should be wrapped round starting from the fore or the aft end of the funnel. Eventually, it was wrapped round the fore with the edges meeting aft. This left a small gap in the green band leading me to think it was wrong after all because the drawings show a small projection, possibly the siren, on the forepart of the funnel. This was not evident on mine. A touch of green paint soon put this right.



Above: Partially exploded view of ship during its construction.



Above: Almost complete except for rigging. Below: The completed model.



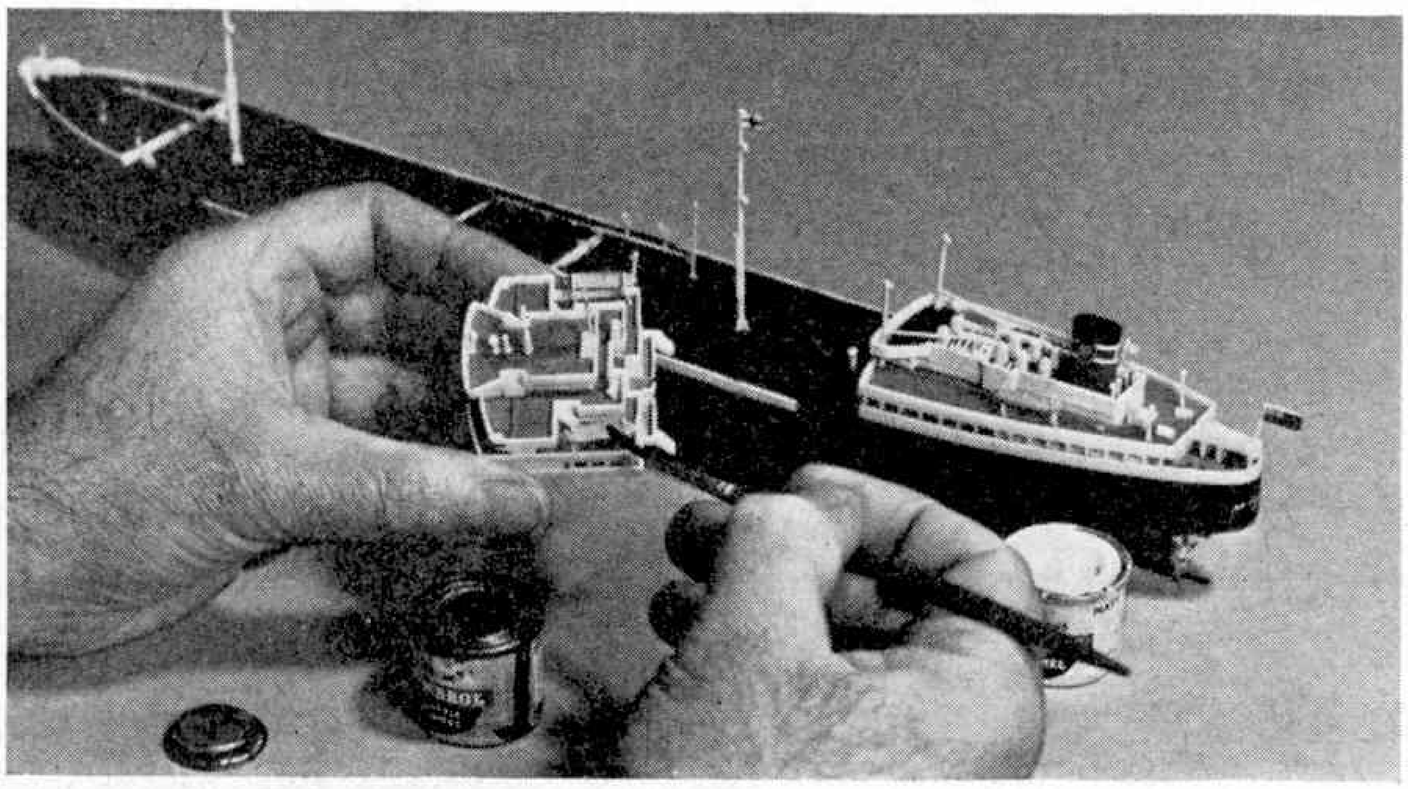
The ensign transfer was a little smaller than the plastic flag so that it needed trimming with scissors. It is worth noting that the feet of the lifeboat davits are "D" shaped, fitting into a corresponding hole in the deck, but they are in pairs—i.e. not all alike. I chose to fix the davits to the deck and then place the boats into position with a pair of tweezers, although the instructions suggest cementing the boats to the davits first. Unfortunately, the anchor chains and the Suez Canal light door appeared to be missing, so I could not fit them.

If you are wondering about the Canal light, it is fitted on the stem of the ship and is used for navigating through this waterway at night. The British Sovereign is normally engaged on passages through the Canal, hence this fitting. The forecastle deck was a little obstinate to locate evenly, due, no doubt, to a slight warping of the bows of the hull, which were wider at this point than the forecastle.

In spite of these comments, I found this to be an attractive model when finished and, as mentioned before, an easy one to make. To add even more realism to your model you can, if you wish, add the rigging shown on the drawing with the instruction.

Both the bridge section and that of the after structure can be built up separately and when completed fixed to the hull in one operation It is well to remember to paint the bases on the main deck white, prior to finally cementing into place.

Some of the detail points may need attention with the touch-up paint brush



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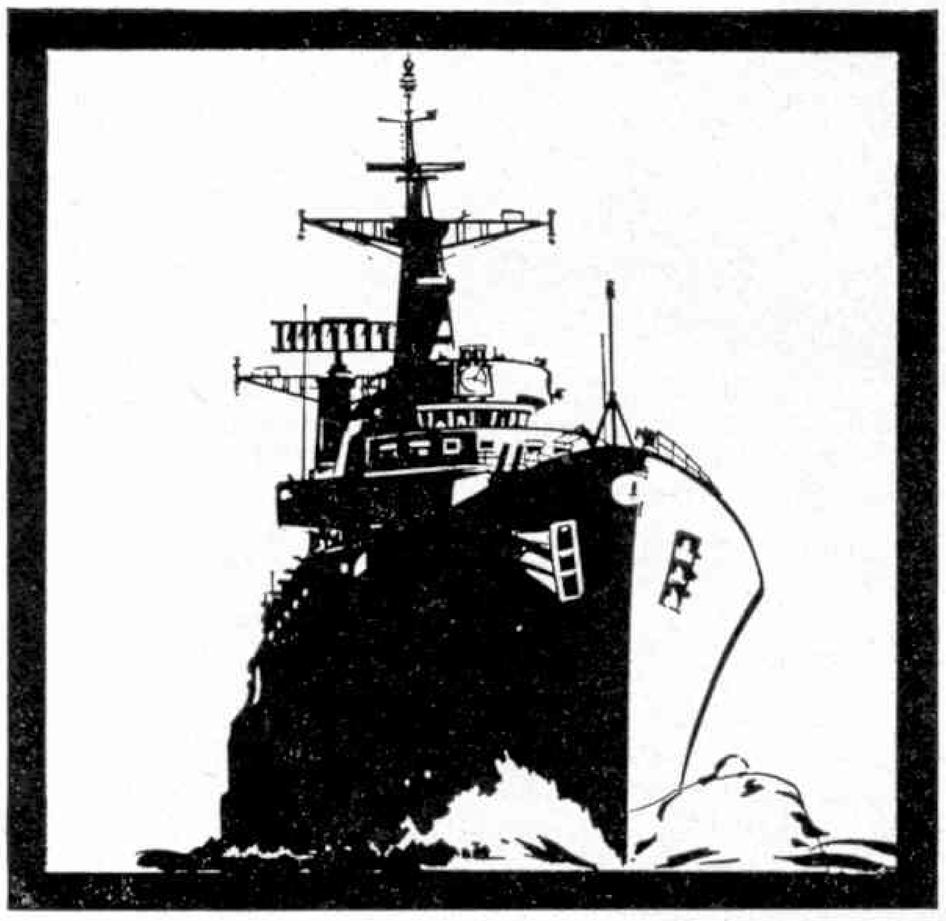

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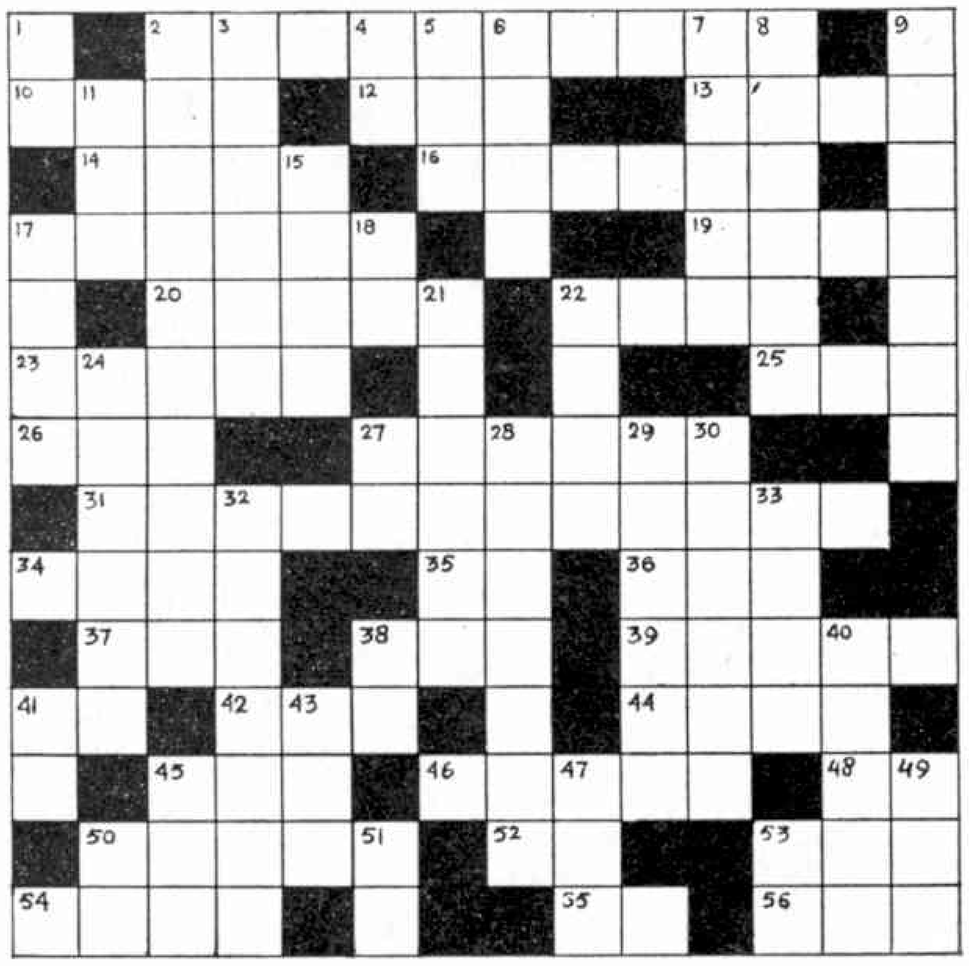
Crossword Puzzle No. 5



CLUES

ACROSS

2. Future means of travel?
10. Bar.
12. Before.
13. Individual ones.
14. Notion.
16. To wait on.
17. Ditch.
19. A crab does it.
20. Guide.
22. Playthings.
23. Remains.
25. Spoil.
26. A fox.
27. You progress when you get into it.
31. Extra.
34. Surrounded by water.
35. Merit wins this decoration.
36. Cows do it.
37. Drink.
38. Animal.
39. Month.
41. Exists.
42. French king.
44. Prophet.
45. Not him.
46. Dismantled ships.
48. Morning.
50. Seen on faces.
52. Point of compass.
53. Consumed.
54. Writer of verse.
55. As far as.
56. Number.

DOWN

1. Either.
2. One way of riding.
3. Abundance.
4. English church (abbrev.)
5. Period of time.
6. What cement does.
7. Coin.
8. Delight in cruelty.
9. Pursuers.
11. Nice when it's fresh!
15. Master cards.
17. Trial.
18. Not 'she'.
21. Scheduled portion.
22. Counterpart of another.
24. You drink to these.
27. Abbreviated street.
28. One of the Roman twins.
29. A woven fabric.
30. Runs away for romance.
32. Not the cheapest obtainable.
33. Tradition.
38. U.S. infantryman.
40. Angry.
41. Pronoun.
43. Mineral.
45. Garden tool.
47. Lease.
49. Males.
50. Negative.
51. Like.
53. Preposition.

Puzzle Page

Turn to page 35 for answers to the puzzles on this page

Tricky Teasers

Here is a figure teaser with which you can mystify a friend. First ask him to write down a row of figures—any numbers he likes and in any order; then tell him to write down another row of figures below the first.

Then YOU add a third row and *immediately* you are able to tell your friend what the three rows added together will come to. For example:—

1st row	805714
2nd row	364728
3rd row	635271
	1805713

The mysterious part is that the added total is always *the same as the first row*—except that the right hand figure is reduced by one each time and an additional figure (one) added to the left of the row.

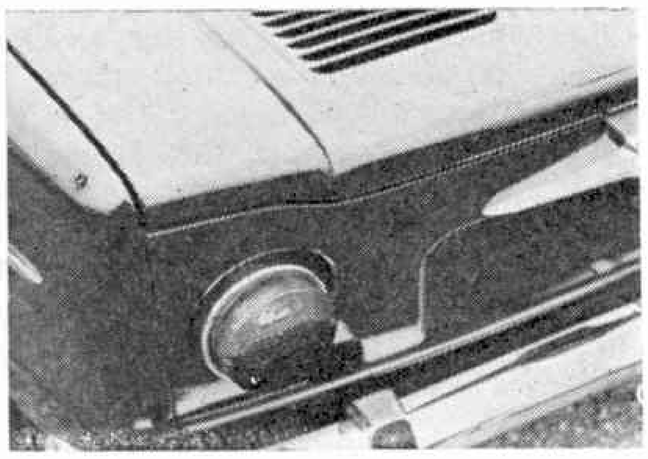
The secret is that in writing down the third row, you put figures that will each make nine when added to the figure immediately above it. You jot down the figures in the total so quickly that it is obvious to your friend that you cannot have totalled up the three rows. Rather mystifying, isn't it?

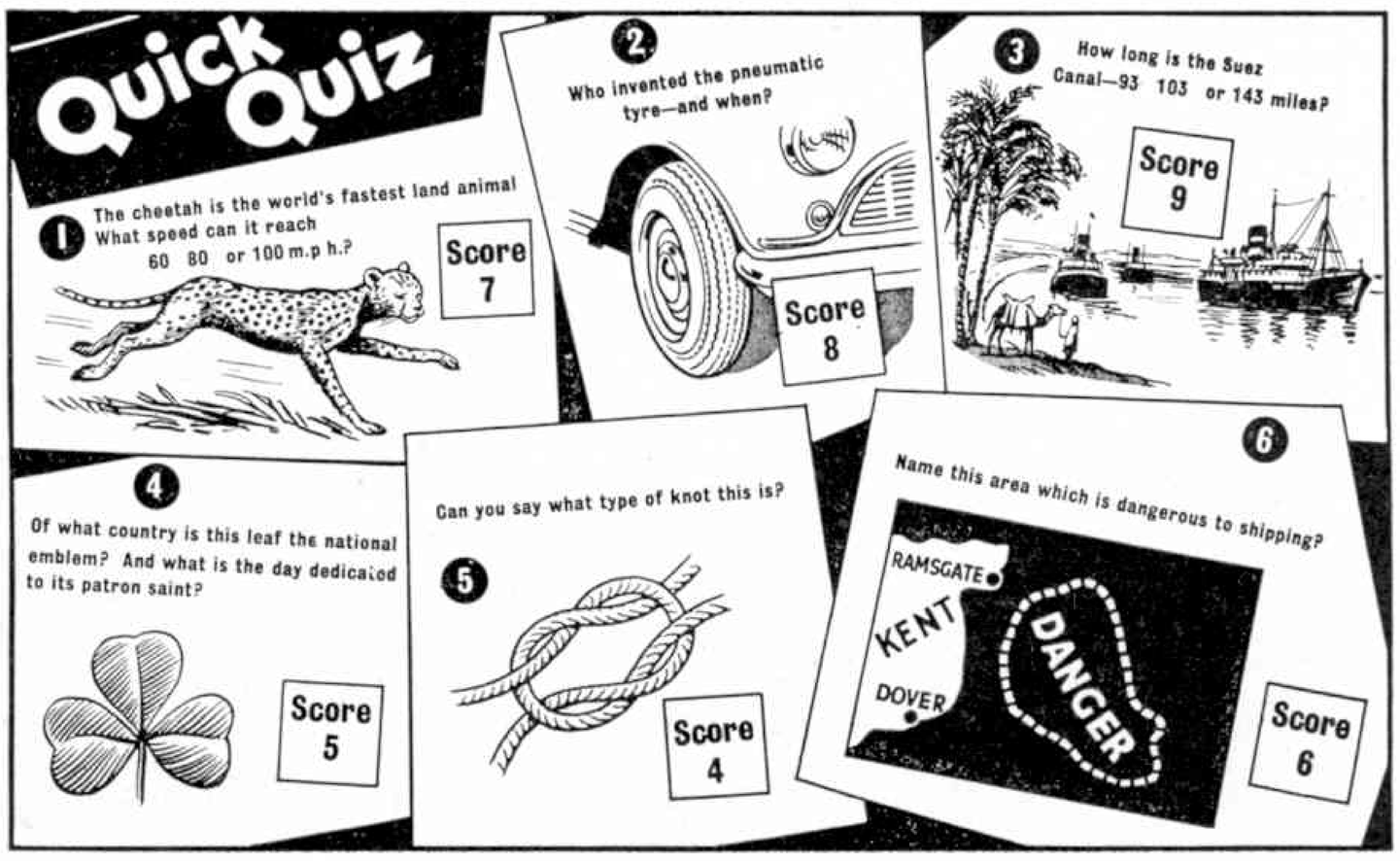
● ● ● ● ●

WORK THIS OUT! If Chess was played with a ball, Hockey with pawns, Darts with a club, Football with a board, Tennis with a stick and Cricket with a racket, what would one expect to use at Golf?

Car Quiz No. 6

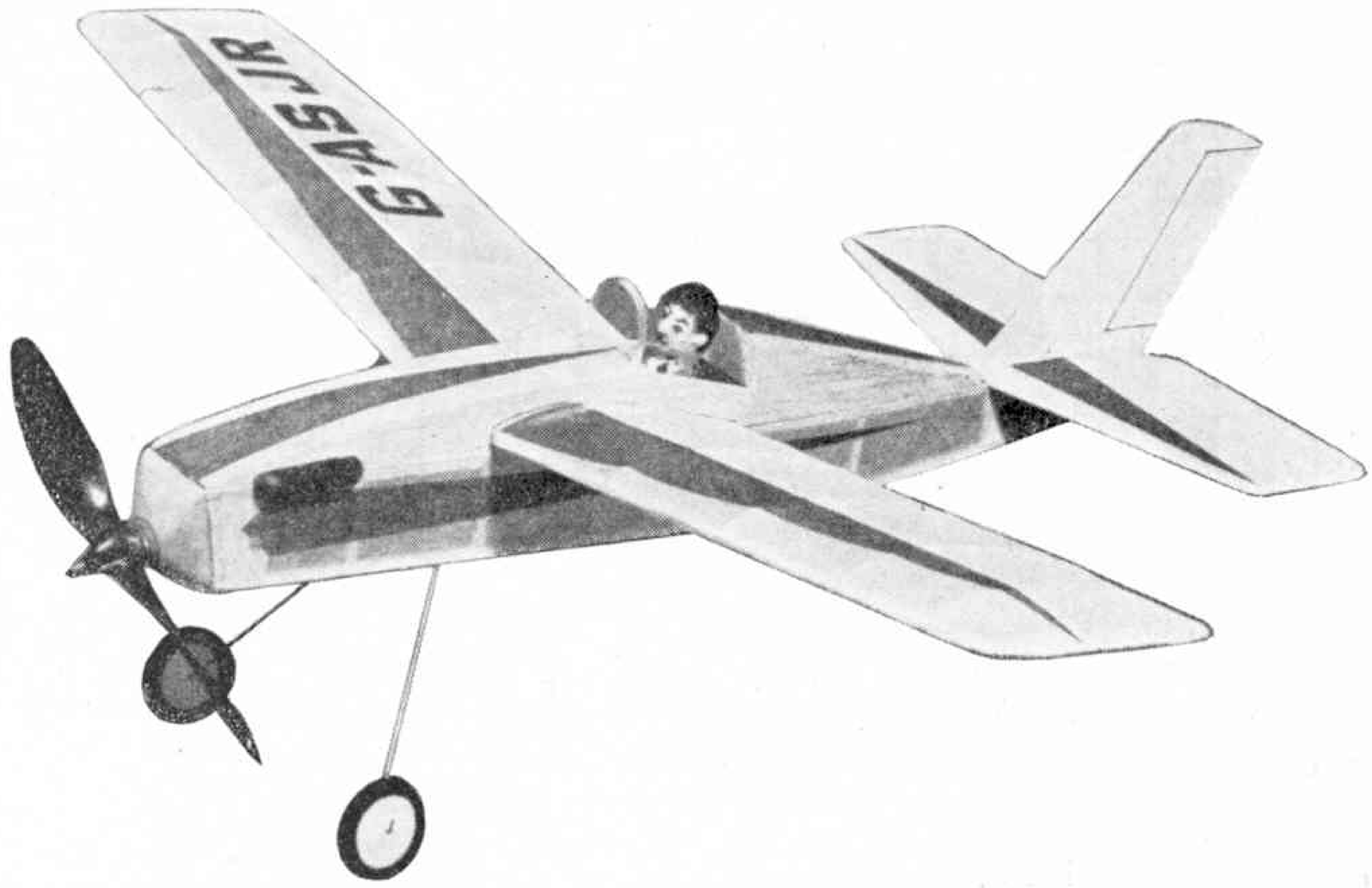
This popular Continental car has a rear engine of 1,000 c.c. What is the make and where is it built?





'STARDUST'

Good flying and good looks can go together! Ray Malmström invites you to build this special M. M. model



MODEL aeroplanes built for duration flying are often criticised for not looking very much like real aeroplanes. On the other hand, those that are faithful replicas of real aircraft are usually difficult to build and tricky to fly. However, 'Stardust' is a compromise between the 'duration' and 'scale' models, and is known to aeromodellers as a sport or semi-scale type model. It combines easy building and good flying qualities, with the look of a real, light aeroplane.

With a pilot in the cockpit, engine cylinders and the wing in the fashionable shoulder-wing position, you could easily mistake 'Stardust' for the real thing as it climbs skywards. If you wish to build this super little model, full plans and instructions are given here.

Build two fuselage side frames over the plan, one over the other. Use greaseproof paper between the frames and over the plan to prevent them sticking together. Remove the side frames from the plan and join with cross pieces A, B and C. Add reinforcing sheet pieces D at the nose and the rear peg anchorages E. Accurately cut out two incidence pieces and cement in position. This must be done carefully.

Bend the undercarriage wire in a vice and then cement it to piece X. Secure the wire in place with a piece of thin linen or silk cemented over the wire, then add the wheels. Next construct the nose block as shown in the 'easi-build' sketches. It should be a good push fit in the front of the fuselage.

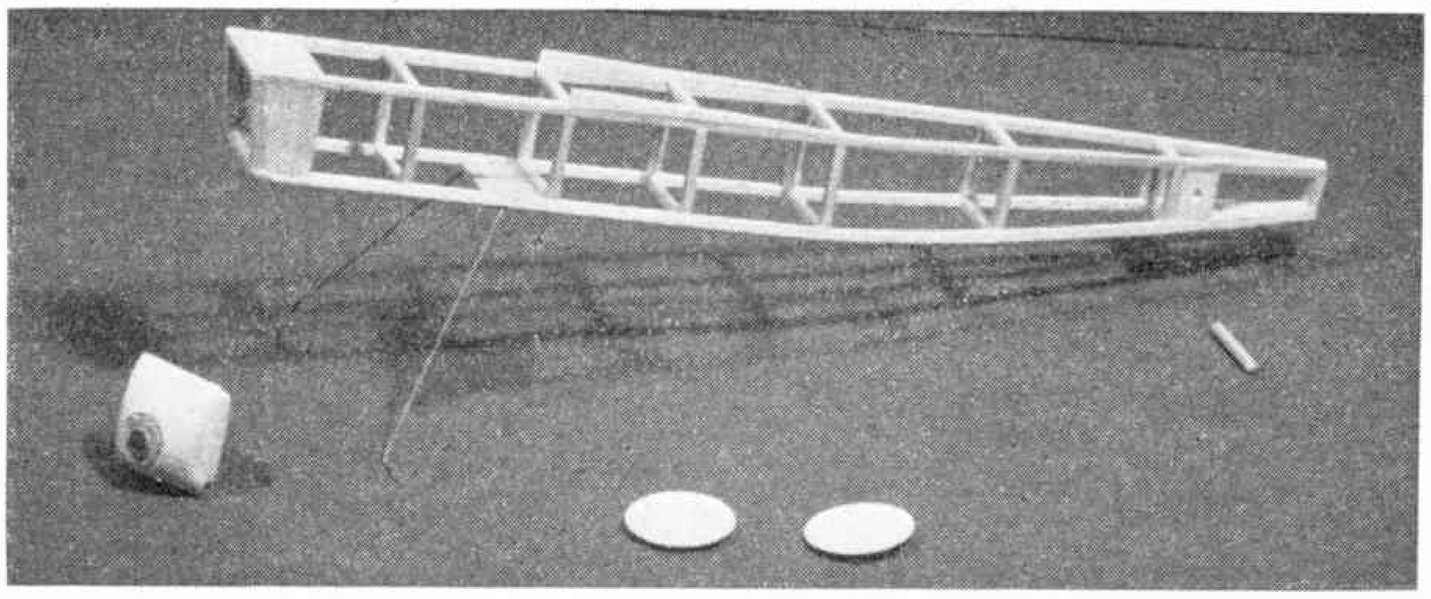
Now cover the fuselage with lightweight tissue, using balsa-cement as the adhesive, Spray on water and allow to dry and tighten, then give one coat of clear dope. Add the tailplane and fin in that order. These should have been given a coat of clear dope first. Pin all doped parts including the wing panels to a board, raised on small blocks of balsa to avoid sticking, while the dope dries. This avoids the possibility of warping.

Build the wing as shown. Join the two panels by the centre ribs. Cover with lightweight tissue, water shrink and give one coat of clear dope. The centre section is left uncovered. The wing is then firmly cemented to the incidence pieces.

Now cut out the two decking pieces from $\frac{1}{16}$th sheet and cement to the top of the fuselage. Add the cross pieces and cover the top with $\frac{1}{32}$nd sheet. Give the completed top decking a coat of clear dope. Put a small piece of $\frac{1}{8}$ diam. dowel rod through the holes in pieces E. Assemble the propeller on the driving shaft as shown, finally forming the driving hook. When the nose block/propeller assembly is in position, the propeller driving shaft should *point downwards* when viewed from the side. This is most important.

Add the cylinder blocks and windscreen. Trim your 'Stardust' with coloured tissue doped in position. Never

The basic structure of 'Stardust'—simple and strong!



RM 1965

ALL PARTS FULL SIZE

1/32 sht covering

Dummy cylinders from soft 1/4 sq. strip

D 1/16 sht

D

D

Mainspar 1/16 sht

Carve pilot from soft block

Front view

3/32 sq

BALANCE POINT

Windshield from thin celluloid

Note angle of UC

X

Tape

Incidence piece 1/16 sht 2 rqd.

Undercarriage centre line.

Decking pieces 1/16 sht 2 rqd.

Undercarriage 20.s.w.g. wire

Fuselage frame from 3/32 sq. strip.

Wheels 1" diam. streamlined plastic

Elec. tubing

Give all parts of model one coat of clear dope. Decorate with coloured tissue doped on. NOT coloured dope

Fin outline

Fin and Tailplane 1/16 sht

Grain

Grain

Tailplane outline

Round all edges cut

Windshield pattern

Tailplane centre line

1/2" sht.

Block

Cup washers

18.s.w.g. brass bush

1/32 ply discs

Shaft 18.s.w.g. wire

5" diam. plastic prop.

Piece Y 1/16 sht

F

Centre rib

Mainspar

F

A

B

C

Cross pieces 3/32 sq strip

Leading edge 3/32 sq

Trailing edge 1/16 x 1/4.

Ribs F 1/16 sht

10 rqd.

F

Piece X 1/16 sht

Tape over UC wire

Cover wing and fuselage with lightweight tissue

Round-off leading and trailing edges with fine sandpaper before covering

F

Pilot Side view

N.B. Use medium grade balsa for all parts except cylinder blocks and pilot

F

Ribs G 1/16 sht

2 rqd.

G

Fin

Tailplane

Tip 1/16 sht

1/8" diam. dowel

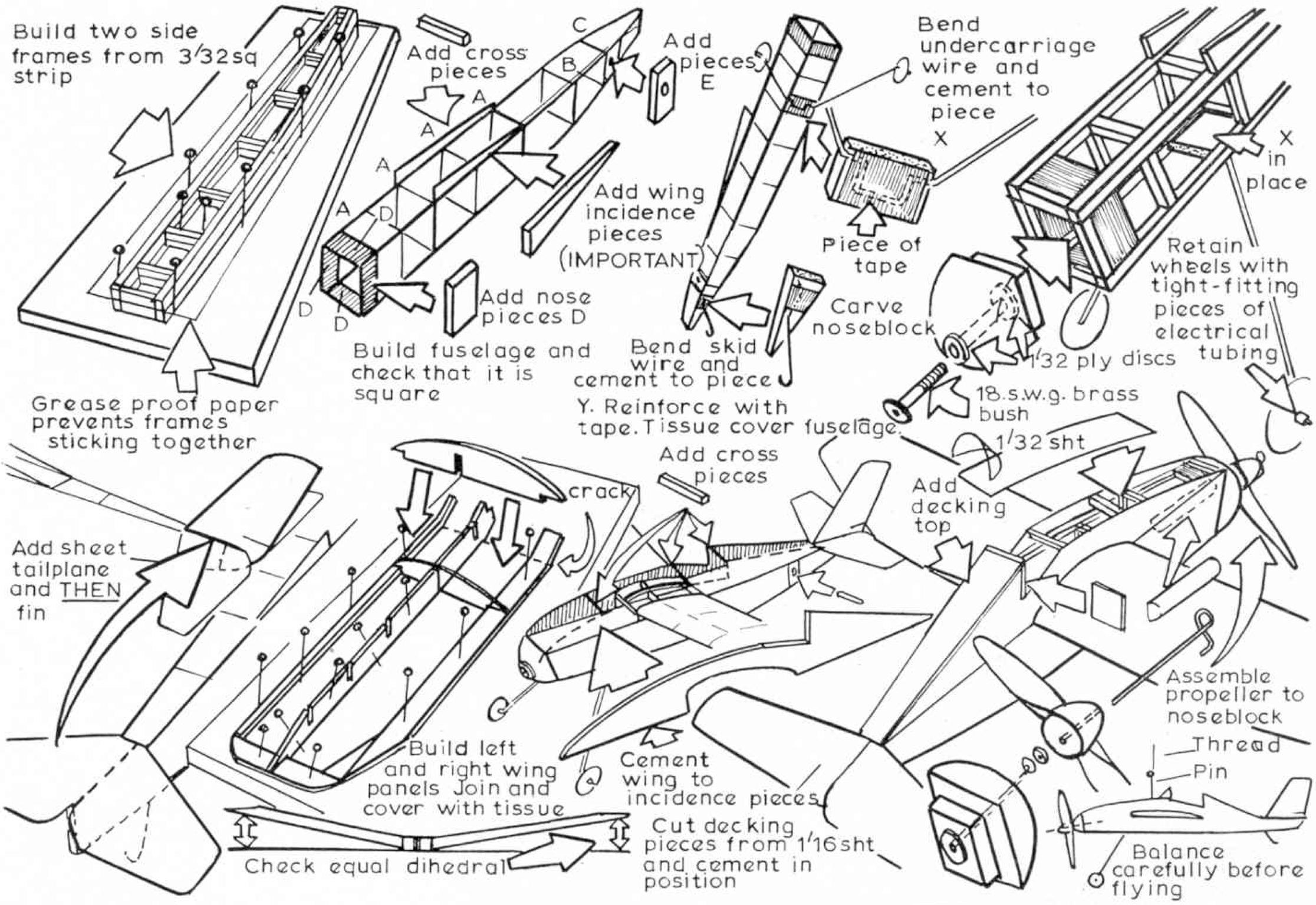
POWER

1 loop 3/16" rubber strip 17" long. (lubricated)

Y

Tape

Skid 20.s.w.g. wire



use colour dope on a small rubber-driven model—it will increase weight far too much. Take 34 inches of $\frac{3}{16}$th rubber and tie into a 17 inch loop. Rub on some rubber lubricant (4d. a tube from your model shop) and install the motor in the fuselage. The rear end is held by the dowel peg and the front end is slipped over the propeller drive shaft hook.

Finally, carve a small pilot head and shoulders and paint with poster or powder colours. Cement the pilot to the wing centre ribs inside the cockpit. He really does add the final touch of realism to your model.

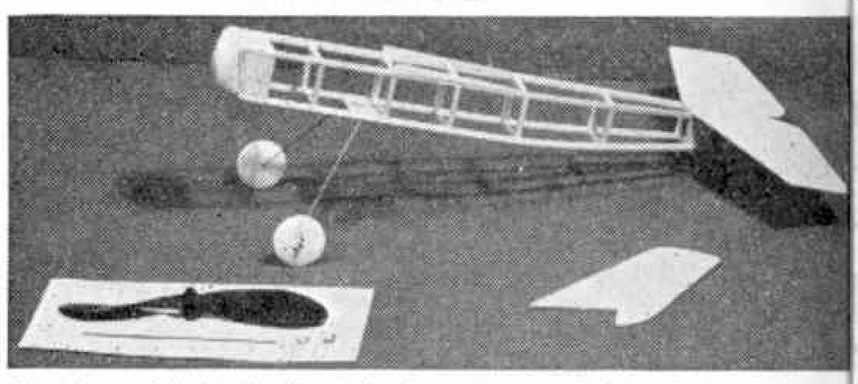
Materials required

6 strips $\frac{3}{32}$ in. by $\frac{3}{32}$ in. by 36 in. balsawood
1 sheet $\frac{1}{16}$ in. by 3 in. by 36 in. balsawood.
1 sheet $\frac{1}{32}$ in. by 3 in. by 12 in. balsawood.
1 strip 3 in. by $\frac{1}{4}$ in. by $\frac{1}{4}$ in. balsawood (soft).
1 block $1\frac{1}{2}$ in. by $1\frac{1}{2}$ in. by $1\frac{1}{2}$ in. balsawood.
1 block $\frac{5}{8}$ in. by $1\frac{1}{4}$ in. by 1 in. balsawood (soft).
Small piece of $\frac{1}{4}$ in. sheet balsawood.
Small piece of $\frac{1}{32}$ in. plywood.
1 Sheet lightweight tissue.
Coloured tissue for trim (to choice).
12 in. length 20 s.w.g. wire.
16 in. length 18 s.w.g. wire.
1 18 s.w.g. brass bush.
1 in. length $\frac{1}{8}$ in. diameter dowel rod.
1 small piece of thin celluloid.
Small piece of silk or linen.
1 K.K. 5 in. diameter plastic propeller.
2 cup washers.
2 1 in. diameter streamlined plastic wheels.
34 in. $\frac{3}{16}$ in. wide rubber strip.
1 tube balsa cement.
1 tube rubber lubricant.
1 bottle clear dope.

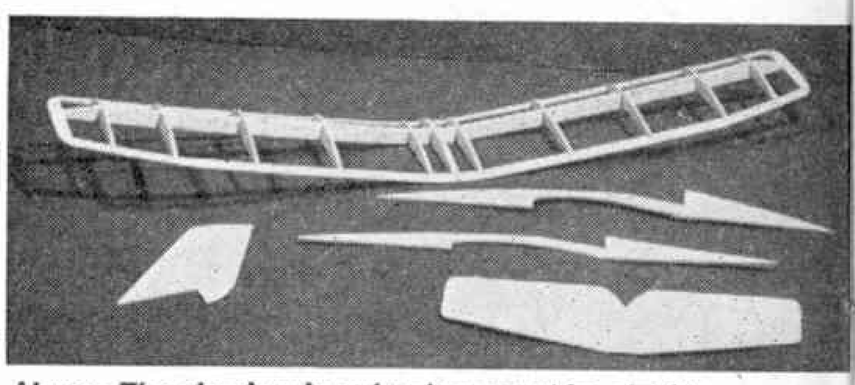
Flying the model

Balancing the model from the point shown is vitally important. Very small amounts of lead or Plasticine may be added to the nose or tail to correct balance. When properly trimmed, glide test the model over long grass on a calm day. Gently thrust the model forward from your hand and watch its flight path. It should glide straight and land about 12 to 15 feet in front of you. If it turns to one side or the other, bend the trailing edge of the fin *very* slightly in the opposite direction. You can now try a power-flight.

Put about 200 turns on the propeller and launch the model into wind. Do this gently and never *throw* it. If the nose rises and the model falls backwards on its tail and then dives (stalling) add a small strip of balsa ($\frac{1}{16}$th square) between the top of the nose block and the fuselage. If the model dives gently, bend up the trailing edges of the tail-plane about $\frac{1}{16}$th of-an-inch. Correct steep turns by bending the fin as described above. Maximum turns, with the motor in your 'Stardust' well-lubricated, are about 650. Take my word for it, 'Stardust' looks *and* flies well!

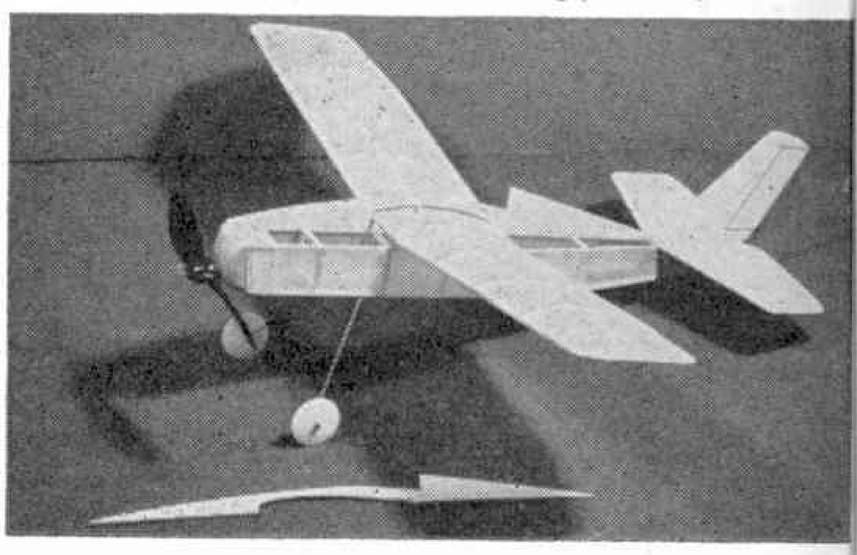


Fuselage of 'Stardust' ready for tissue covering



Above: The simple wing structure provides rigidity

Below: Wing positioned and one decking piece in place



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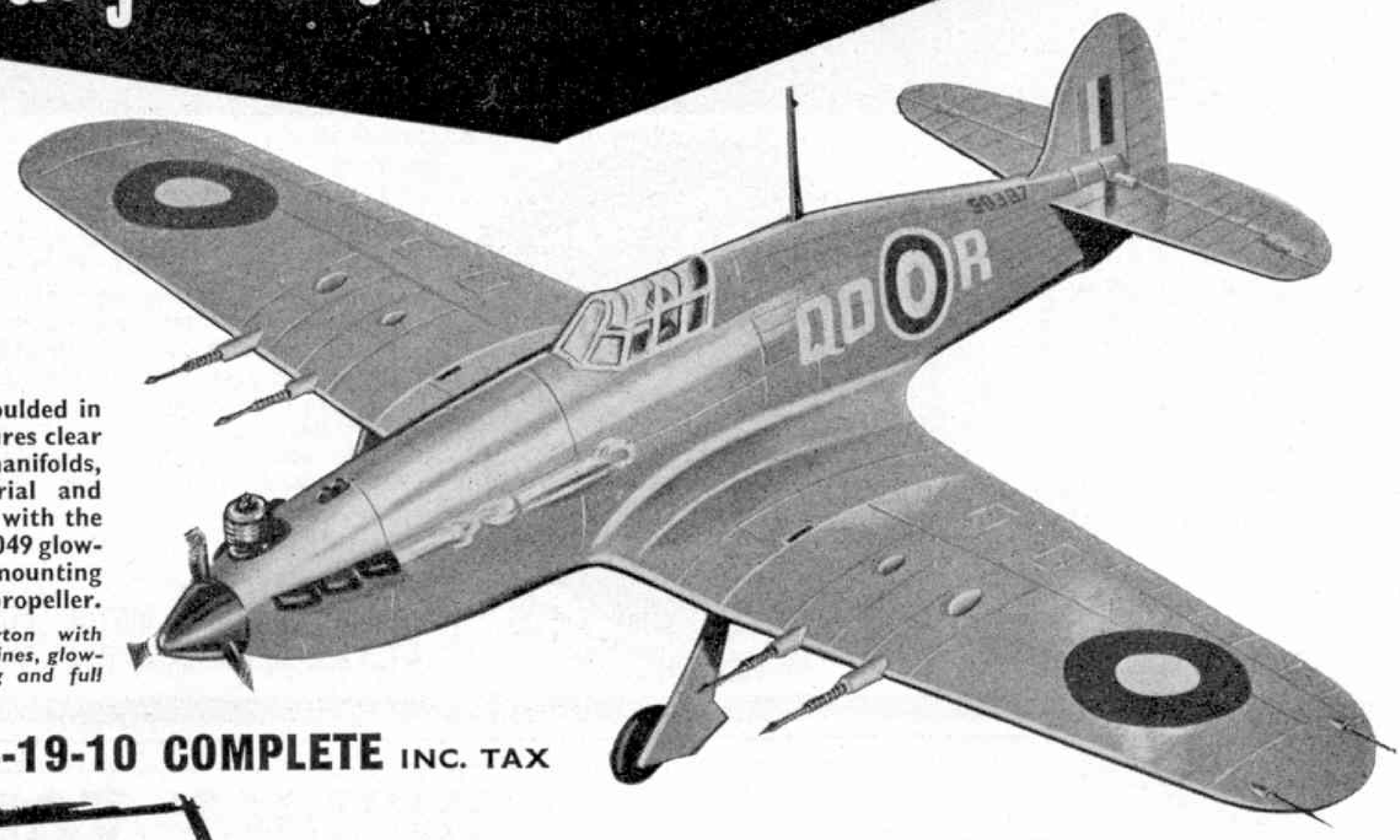

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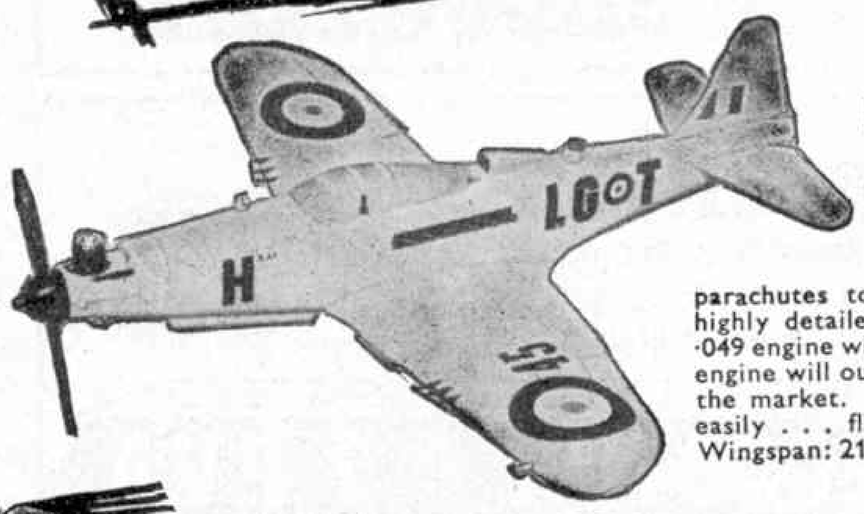

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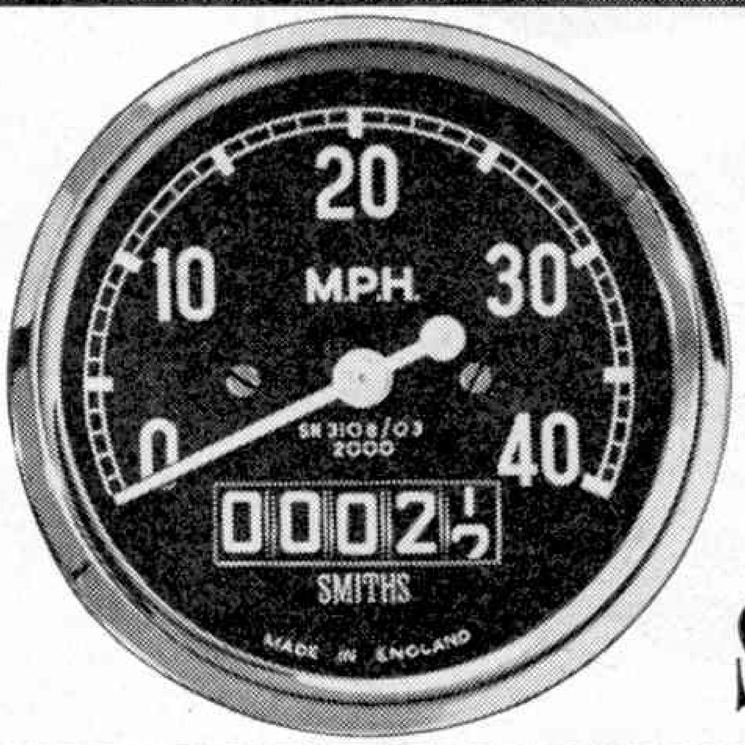

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CHECK YOUR CHAIN

RAIN, an abrasive mixture of old grease and dirt and worn teeth to run on are the unhappy lot of most cycle chains. That they perform their task as long as they do without falling apart is a tribute to the engineering skill of the manufacturers. Given proper maintenance, however, the cycle chain will run for years quietly and efficiently.

Let's start this article on chain care by presuming you have bought a new chain. If you have an ultra-modern lightweight machine, your chain may be $\frac{3}{32}$ in. pitch. If it is a standard machine, it is probably $\frac{1}{8}$ in. A new $\frac{3}{32}$ in. chain used with a derailleur gear, will need riveting and this is best done by your cycle dealer. An $\frac{1}{8}$ in. chain, however, is extremely simple to fit.

While the old chain is still in position, check the alignment. Crouch behind the machine and sight along the chain to make sure it runs in a straight line. If it doesn't, you will have to add some packing or remove some existing spacers from the rear wheel spindle, until chainwheel and rear sprocket are exactly in line and the chain is straight.

With the old chain removed, check the teeth of both chainring and rear sprocket. They should be symmetrical and not worn. Worn teeth tend to become hooked in shape as can be seen in Fig. 1.

Spin the chainring and watch it carefully as it passes the chain stay. If the chainwheel is buckled it will show quite plainly. Use a long metal bar to lever the ring back to shape. Check, too, that the pins which connect the ring to the centre 'spider' are all in position and tight. If they have a tendency to work loose, they can be held by coating the threads with a proprietary thread locking compound.

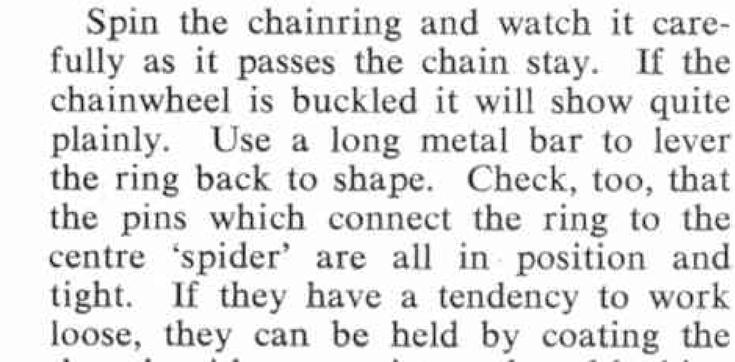


Fig. 1—The hooked effect of worn teeth, shown in contrast to the teeth on a new sprocket.

Fitting a chain

Position the rear wheel half-way along the rear drop-out slot and tighten it in position. Wrap the chain around the rear sprocket and the chainwheel and haul the ends in together. They will certainly overlap. The length of chain which has to be removed will then be apparent. Remember that the end link, after the chain has been shortened, must be an inside one so that the spring link can be used to join up. See Fig. 2.

By far the best way of shortening the chain is to use a rivet extractor, as shown in Fig. 3. If you do not have one of these and cannot borrow one, do the job by laying the chain on a pair of pliers laid on the ground. The rivet to be extracted should be immediately over the round hole in the jaws of the pliers. Use a punch and a hammer to tap the rivet free. Tap it one side till it goes down into the bush—then turn the chain over and punch out from other side.

The link extractor is used in a similar way. Push the rivet out from one side first. Then reverse the chain and push it out from the other side.

Now the ends of the chain may be joined. Lay the ends so they meet on the chain ring teeth. Push the fixed plate and rivets through from behind, slip on the top plate and lock the spring clip into its grooves in the rivets by means of a pair of pliers. Remember that the closed end of the spring clip must point in the direction of trave' of the chain, i.e. forward on top.

Now adjust the chain tension by moving the rear wheel forward or back in the rear fork drop-out. Lock the rear wheel in position so that there is $\frac{3}{4}$ in. play in the chain. This should be measured at the tightest point — the chainring is not always round and the chain is tighter in some spots than in others. Remember, if the chain is too tight it will stretch. If it is loose, it might fly off, jam and break.

Correct Maintenance

Maintenance is not difficult. Keep the chain lubricated with a thin oil. Rotate the cranks and while the chain is moving squirt oil on to the *inside* face of the chain.

Periodically the chain must be removed, properly cleaned, regreased and replaced. With the chain off, lay it in a tray of paraffin. Use an old toothbrush to get off the accumulations of road dirt and old grease.

Give it a final wash in clean paraffin and dry it off thoroughly. Lay the chain in a metal pan—a tin lid will do—and smear it thoroughly with grease. Gently heat over a gas flame (Fig. 5). The grease will become soft and runny and flow between rivets and bushes, bushes and end plates. Leave to cool, wipe off the surplus, and then replace on the properly cleaned chainwheel and sprocket.

How do you know when a new chain is required? There are two ways of telling. First, with the chain on the bike, pull the two strands towards each other tightly and hold them. Then try and pull the chain away from the teeth on the front of the chainwheel, as shown in Fig. 6. Any appreciable movement will denote 'stretch'. Wear will also show if the chain is removed and bent sideways (Fig. 7).

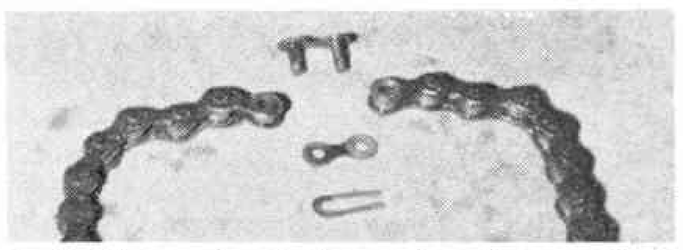


Fig. 2—The parts of the spring link used for joining the ends of the chain. This is a useful spare to carry.

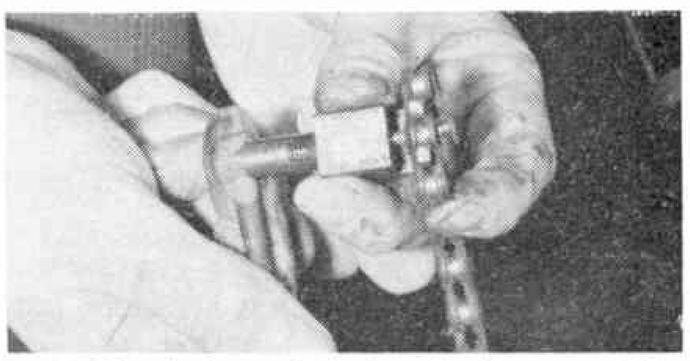


Fig. 3—Shortening a chain by extracting one of the rivets with a rivet extractor. Use this on both ends of the rivet.

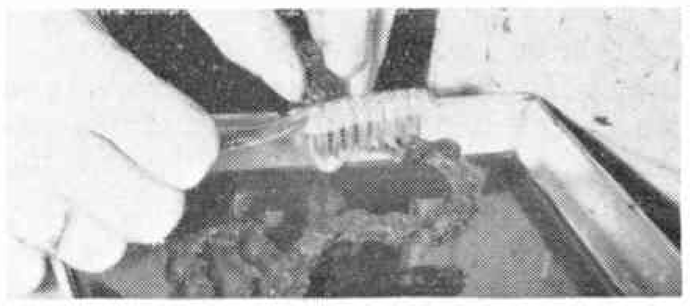


Fig. 4—Cleaning dirt and old grease from the chain using an old toothbrush and a tray of paraffin.

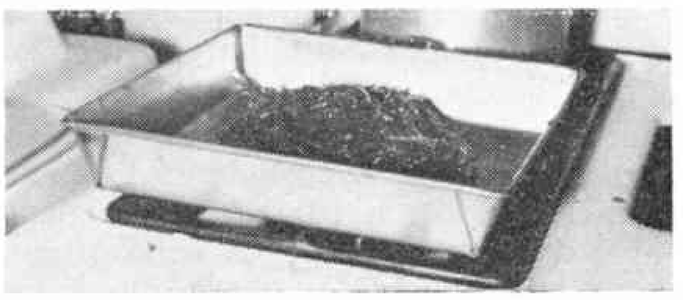


Fig. 5—How the chain is heated up with some grease, so that the grease runs into the chain for proper lubrication.

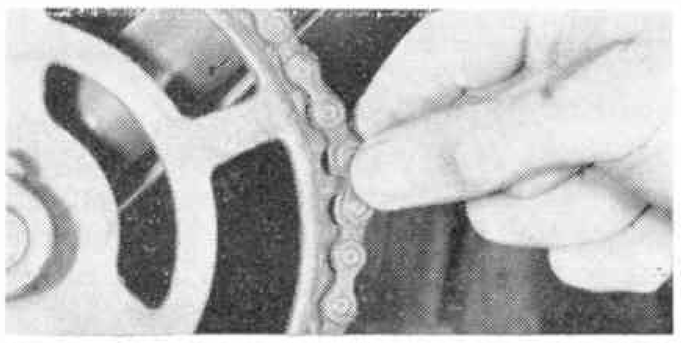


Fig. 6—One of the tests for a worn cycle chain. The two strands are pushed together behind the chainwheel and the chain pulled away from the teeth on the front. Too much movement denotes "stretch".

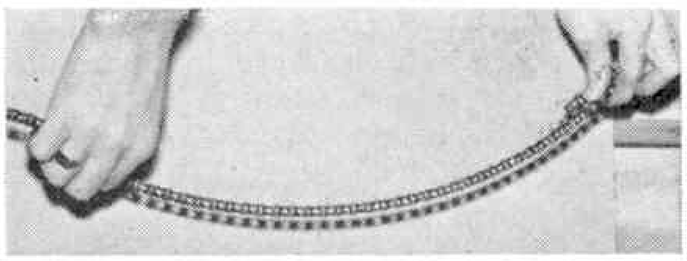


Fig. 7—Another test for wear. Here wear is shown between end plates and rollers, allowing the chain to bend laterally.

THE FLYING TIGER

'Out of fuel over the sea!
Will Martin Tracy have to ditch the Dakota?'

'FLY that?' Digger Ames' voice rose to an astounded squeak as he goggled at the ancient Dakota standing forlornly on the edge of the runway. The 'plane was in the last stages of decay and the old USAF markings, which could still be faintly seen under layers of dirt and paint, suggested that no major service had been carried out since the Dak had been demobbed!

Martin Tracey said nothing—but he was just as astonished as Digger. The pals had been sold a pup, but that was less than half the story. After demonstrating a helicopter designed specially for mosquito-lava spraying, Martin and Digger had been asked to fly a valuable young tiger from Africa to a private zoo in Italy. The fee had been impressive and the aircraft had been laid on, and this was the result—a 'plane that *might* get off the ground. If it did eventually stagger into the air, the chances of its remaining airborne were fifty-fifty at the most *and* there would be the additional complication of a tiger in the rear of the aircraft. True, the tiger would be in a cage and it would also be under sedation, but this was no consolation for the condition of the Dakota.

In any other circumstances, Tracey would have called the whole deal off and taken a civil airline trip back to England —but there was a snag. A band of cut-throat rascals, rejoicing in the title of the Central Army of Liberation, had risen against the government and the savage onslaught of the initial attack had thrown the regular Army back.

Gunfire getting closer . . .

Even as Tracey and Ames were looking at the Dakota, they could hear bursts of gunfire not far away. The fact that the pair had nothing at all to do with either side was largely beside the point, for it would be a supreme optimist who tried to adopt a position of lofty neutrality in the face of a victorious mob.

'We've no choice,' grunted Martin. 'We've got to use the Dak or be shot to ribbons and we haven't much time! Those rebels will be here in under the hour and we don't want to be around when they turn up.' He walked over to the Dak with Digger beside him and looked inside loading door.

A form of cage had been made inside by bolting tubular steel across the ribs of the main structure and the door of the cage faced the rear end of the aircraft. It seemed to be a reasonably substantial job—certainly good enough to hold a doped animal for a few hours. Although there was plenty of room behind the cage, it would be impossible to reach the rear of the plane from the front once in the air, but that was of no consequence. There was ample room for the crew.

The tiger arrives!

Tracey climbed out of the Dakota just in time to meet a battered, old fifteen-hundredweight Bedford drawing up near the plane. On the back of the truck was a crude cage containing a gigantic tiger—quite the biggest Tracey had ever seen. He glared at the harassed looking man who was climbing out of the truck.

'Is this a *young* tiger?' he snapped. 'In my instructions, it distinctly specified a two-year-old animal, not a fully-grown brute as big as a horse!'

The driver of the truck blinked slightly. 'It is a two-year-old, Mr. Tracey. It may not grow a great deal taller, but it has to fill out a lot yet before it's fully grown.

Digger Ames was also regarding the tiger with a cautious eye and he was hugely relieved to see the creature was doped. It lay on the floor of the cage and lazily opened one enormous yellow eye for a second, then went back to sleep.

'Let's get this brute on board, Martin,' he said. 'Apart from our friends in the jungle, I'd like to get this job over before Tiddles wakes up.'

He was quite right. The rattle of gunfire was perceptibly louder and there was no time to be wasted.

'Fair enough, Digger,' rapped Martin. 'Let's get cracking while the tiger's being loaded.'

The two climbed into the nose of the machine and settled themselves down in the ramshackle seats. Digger gazed sourly at the battered instrument panels and switched the equally battered radio on. A confused uproar of static, morse and chattering voices spluttered through the headset and Digger turned the set off.

'We'll get nothing till we're airborne and I suppose the revolution has upset normal transmissions anyway.' He turned in his seat and watched the ground-crew backing the Bedford up to the loading hatch. Part of the cage was lifted up into the aircraft and a matching door on the Bedford cage creaked upwards. The floor of the truck cage was on rollers and the sweating men on the ground pushed the floor slowly into the Dakota.

The drugged tiger twitched slightly as the floor grumbled into the aircraft cage but showed no other signs of life. The cage door dropped down, the bolts were slid home and pegs dropped into the bolt-ends to secure them. Then the hatch-door was clamped into position and they were all ready.

'Start port engine,' said Martin and Digger pushed the starter lever. The propeller ground slowly over for a few revolutions, caught with a puff of smoke and fired. The blades spun into a continuous circle and the engine settled down evenly enough. The starboard engine started equally easily and Tracey began a quick cockpit check.

The controls all worked surprisingly well and they certainly belied the fearful appearance of the Dakota. In fact, for the first time in three days, Tracey felt a little more hopeful.

'Stand by for mag-drop,' said Tracey and gradually opened the throttles wide to run each engine at full speed for a few seconds. The Dakota shuddered violently and juddered against the brakes while huge clouds of dust billowed from behind the whirling propellers. Everything inside the aircraft shook under the vibration and the tiger's fangs showed in a gesture of sleepy protest. Then Martin eased the throttles closed again and the noise and vibration stopped.

'O.K., Digger,' Tracey smiled. 'Let's go! We won't worry about clearance details. There are no other aircraft around here.'

Even as he spoke, disaster struck. A handful of men burst from the jungle and came charging across the airfield, firing automatic carbines as they ran. The group round the Bedford crumpled in the hail of lead and a Perspex panel just about Digger's head shivered into fragments as a slug tore through.

Brakes off – throttles open

Martin Tracey's reactions were immediate—he released the brakes and banged the throttles wide open. The Dakota rumbled down the dusty runway, picking up speed as it roared towards the rebels. It was a desperate moment, but Tracey's calculated risk paid off. The rebels stopped as the 'plane bellowed towards them, then they broke rank and scattered.

The Dakota lurched once or twice, then

its bumpy progress eased as its wheels left the ground.

'Airborne!' yelled Digger and his hand closed over the undercarriage gear. The wheels slowly rose and Martin banked easily round to start the long climb to the Dakota's best cruising altitude of about ten thousand feet. He set a course for the coast and rather nervously switched on the automatic pilot. It seemed to work and, apart from checking the course more frequently than usual, Tracey left the aircraft to its own devices.

Digger, in the meantime, had been checking all the instruments that did work. It seemed as if everything was behaving properly with the exception of the radio which crackled and spluttered so badly, it was virtually impossible to get any sense from it. The transmitter seemed to be in order, but it was impossible to check as the receiver was misbehaving so badly, no response could be obtained from calls. It could make life tricky when it came to landing, but any snags could be overcome by using the Aldis lamps to make visual signals.

The coast came up after a couple of hours and Digger worked out a new course for Martin to set. The Dakota droned steadily on over the sea and the two men relaxed in their seats, blinking contentedly in the warm, oil-smelling deck. It was Martin who spotted it. . . .

A fuel gauge needle suddenly started to jerk back and forth across the dial and the low-level light flashed on. Digger followed the direction of Tracey's finger and jerked forwards. 'It was showing over half-full not fifteen minutes ago!' he ejaculated. 'What's going on round here?'

The Dakota was fitted with wing-tanks and Digger automatically stared out at each wing in turn. Halfway along the port wing were small, neat holes—obviously bullet holes. It seemed that the rebels had not been broken quite so effectively as had seemed and any one of those holes could mean a nicked fuel-line that had parted after some hours of flying.

Digger switched off the main port tank and turned the emergency reserve on. If the leak was in the tank, they could just about make it, but if the pipeline to the engine had parted, that was a very different kettle of fish. It took fifteen minutes of agonised staring at the gauge to be certain and the rate at which the needle fell was a positive guarantee that it was a main pipe that had gone and most of the fuel was being blown out behind the aircraft in a fine, invisible stream.

'How long, Digger?' asked Martin Tracey quietly.

Digger made a few quick calculations and looked up. 'Half-an-hour at the most!' he replied. 'Then both port tanks will be empty. Will this old crate hold up on one engine?'

Send out S.O.S.

Martin looked at the starboard tanks' gauges. 'She'll fly after a style,' he replied slowly. 'But we'll gradually lose height and I don't know how much fuel we will use, because the one engine is going to be working flat-out all the time. Better send out a "Mayday" so that a ship can pick us up when we bale out.'

'What about Tiddles?' asked Digger, jerking his thumb at the tiger in the middle of the aircraft. 'He can't pull a ripcord.' Martin shrugged. 'I'm very much afraid Tiddles has had it,' he replied. 'The best thing we can do for the poor brute is to plug him before we bale out. He won't feel anything in his drugged state.'

Digger nodded and turned to his transmitter. The 'Mayday' distress signal went out with details of the 'plane's position over and over again. He tried the receiver two or three times to see if he could pick up a reply, but it was a waste of time. Finally, he locked his transmitting key down so that a continuous emergency signal was transmitting, giving all receivers the best possible chance to fix the position of the aircraft.

Then he climbed from his seat to fetch the parachutes but, just as he stood, a thought struck him and he slumped back again. 'Martin,' he said, in a quiet voice, 'the 'chutes are stored in the racks aren't they?' Tracey nodded and Digger carried on in a quiet tone. 'Well, in that case, we've had it. There's a cage between us and the racks and there's no possible way of getting through to them.'

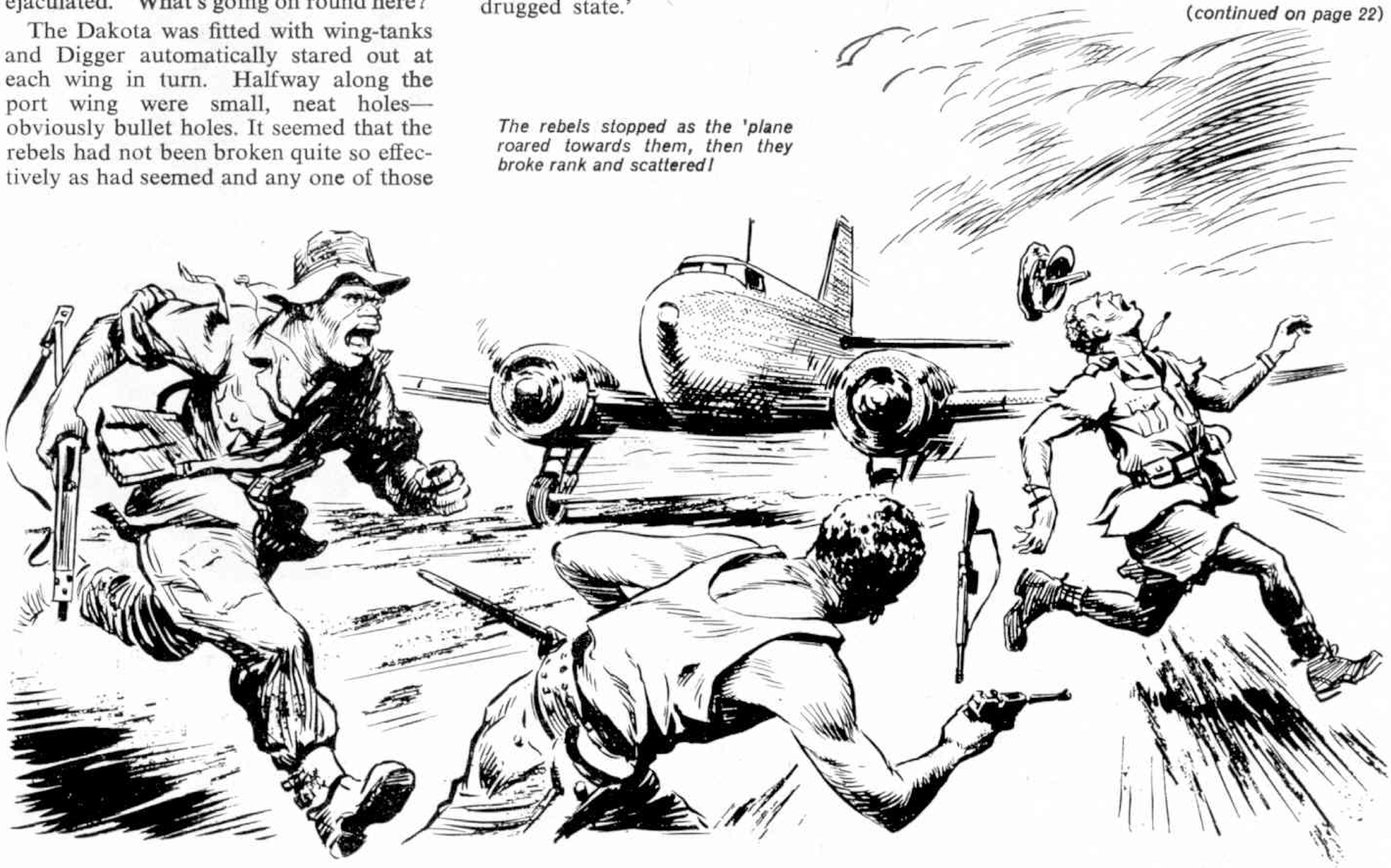
He was right. Their one hope of survival was gone. Even if the tiger had not been in the cage, the door was at the back and it would have taken at least an hour to hack through the bars.

Ditching an aeroplane is a hazardous business at the best of times. The best pilot in the world can stall the aircraft into the water at the minimum speed and Martin Tracey could almost certainly have brought it down at about 50 m.p.h., but even at that relatively low speed, water becomes as hard as concrete.

Even as he was working out the odds against their rescue, Martin Tracey had throttled down and started losing height. The Dakota broke through the haze at three thousand feet and the blue sea sparkled up with a deceptively placid

(continued on page 22)

The rebels stopped as the 'plane roared towards them, then they broke rank and scattered!



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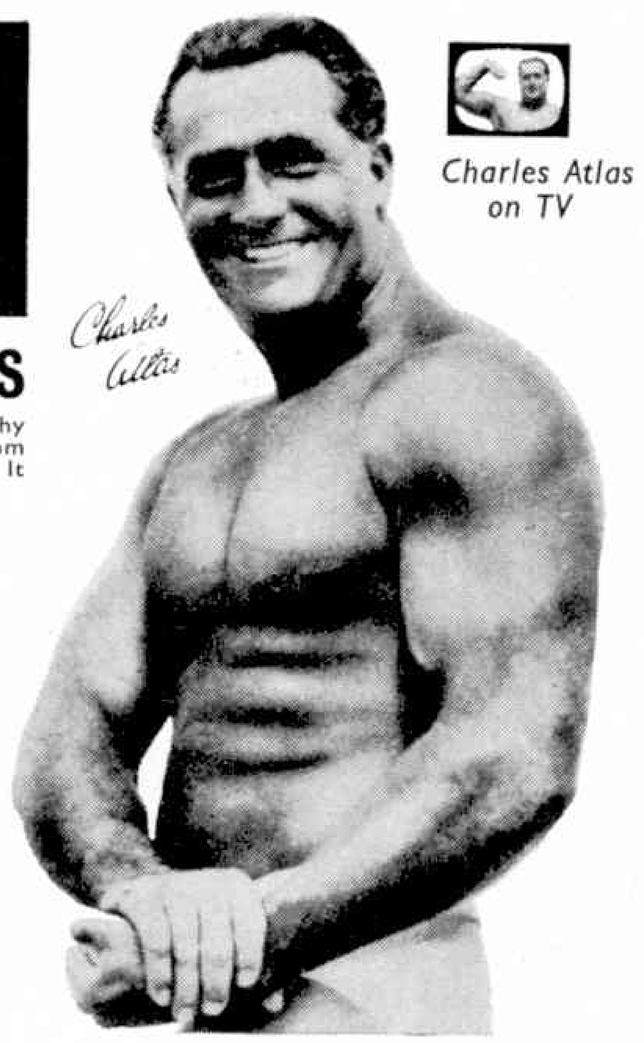

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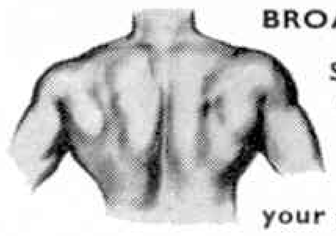

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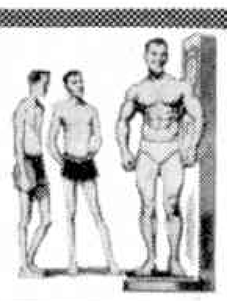

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Camera angle by **Paul Dong**

COLOUR PHOTOGRAPHY

PRINTING or projecting is the problem which faces all who take colour photographs. Should the finished article be a pretty colour picture on paper, or should the photograph be projected from a colour transparency? The choice is, of course, up to the individual, but this week I want to explain some of the problems involved with colour photography and possibly help you decide whether you prefer negative or positive!

The positive process, for many years the only simplified method of taking colour photographs, has gradually been overtaken by the colour negative, which is more suitable for printing.

However, if you only require a colour reproduction of the original subject and are happy with a transparency, this process still gives the result more cheaply, but it is the more expensive if you require prints.

The cost of colour

The following costs show this point in detail. The total cost of 20 shots on Kodacolor-X film (35mm) including prints is £2 17s. 0d. With the positive material, Kodachrome II, you get 20 transparencies for £1 5s. 6d., but if you require prints from these you will have to pay an extra £2 15s. 0d., making a total of £4 0s. 6d. The difference in price between the two processes is £1 3s. 6d., and because of the difference in processes, prints from the transparencies would not be as good as prints from the negatives.

The main disadvantage of transparencies, apart from the need for a viewer or projector, is the necessity for absolute accuracy in exposure and colour balance when the photograph is taken. Negative films, on the other hand, can be corrected slightly during printing.

Negatives cannot be projected or viewed as the image itself is negative, as with black and white film. Also, the colours are reversed and you get unusual effects such as blue lips and red or green hair. They can however be printed more cheaply and with better quality than positive transparencies and can also be printed on film to provide transparencies for projection.

Dual-purpose films

There are, on the market, dual purpose films such as Kodacolor, which are designed to be used with two different types of lighting, daylight or clear flashbulb, without the need for compensating filters. However, you can only use one type of light at a time, never mix the two. The necessary filter is applied during printing to make the slight corrections necessary to colour balance.

The biggest problem here is the amount of accurate control that is necessary and the cheap machine made prints produced for general use are not always as accurate as they should be. However, by ordering prints larger than Enprints, you will have the satisfaction of having your prints made by hand. In many cases, although you have to pay proportionally more for this, it is often worth it.

It is very difficult for a person working in a laboratory to know exactly what the colours in a photograph should be and verbal descriptions are not much use as people's idea of colour varies. The best thing to do is send along an actual sample of the material in the picture to provide the perfect colour guide for the person printing the film.

Colour balance

The light emitted by different sources varies considerably in colour from a warm reddish glow to a cold, hard bluish glare. These colours have been measured by relating them to the colour of a theoretical black body gradually heated, very similar to an electric fire element. The colour temperature resulting being described as degrees Kelvin. At the lower end of the scale used by photographers is the domestic tungsten light bulb which produces 2,900°K. Nearer the top of the range is bright mid-day sunshine which provides around 6,000°K.

The ideal way to work out the colour temperature of the light falling on the subject is with a colour temperature meter. However, for most occasions a printed scale of temperatures of well-known light sources is sufficient.

If we buy a film balanced for one light source, we will get a colour bloom or cast over the print or transparency if it is used with a different light source. Therefore, if we wish to avoid this, we have to use a compensating filter on the camera to alter the colour of the light. For instance, a flash film if used without filters would have a reddish cast in artificial light and a bluish cast in daylight.

The secret of correct colour balance is: (a) Use one type of light source at a time. You cannot mix light of two or more colours. (b) Use either the correct film for the light or use a filter to correct the light to the film you are using.

Details of the filters required are usually given in the instruction leaflet included with the film, the filters being available either as a piece of coloured glass or gelatine. The latter is comparatively cheap to buy, but if mishandled it doesn't last long. The biggest problem is for the user of several makes of film. All the manufacturers have their own systems for numbering filters of different colours and strengths and it is very difficult to convert from one system to another. Therefore, if you use different makes of film you will eventually accumulate several sets of filters.

Universal filters

One way out of this is to use the P.S. Photometric filters. These are made of high quality glass and cost around 8s. 0d. each depending on size. There are eight to the set, so you can literally equip yourself for every type of film and light source for around 60s. 0d.

These filters are based on the mired system, in which the film and light source are given a mired rating. It is then only necessary to compare the numbers and add or subtract from the light number to make the two equal. You then take a filter out of the box with this number on it and you have correct colour.

For example: Kodachrome II daylight film is given the rating of 167, photoflood lamps are given the number 294. After comparing the two, we find that we need −127 to make the numbers equal. The nearest filter is −120 and this is close enough, the odd seven making no noticeable difference.

Using these filters you can overcome almost all colour balance problems, including taking photographs early in the morning and late evening when the light is so reddish that it is almost the same colour as tungsten lamps.

Full details of these and other filters are given in a very useful booklet 'Filters and their uses' which Photo Science will be pleased to send you if you send 1s. 0d. in stamps and your name and address to their office at *Charfleet Road, Canvey Island, Essex*. Don't forget to mention Meccano Magazine!

Exposure

Correct exposure of colour films is essential and guesswork is definitely out. The instruction leaflet is a good guide, but the inexpensive calculator is better. If you have, or can afford to buy, an exposure meter, this is better still.

As with black and white photography, an increase of exposure is necessary when using the filters. This means that daylight film used in artificial light with a filter will need an increase of about 4x depending on the film used. However, artificial film is usually made slightly faster than daylight, so an artificial film used in daylight with filter would be the same speed as daylight film.

Therefore, if you intend to use colour in artificial light and daylight, you will gain by buying artificial light film, which will be faster indoors and easily converted to daylight outdoors.

Finally, a last note on colour balance. Most artificial light films are balanced for photoflood lamps, so you will need a filter to use them with ordinary household tungsten lights.

The Flying Tiger (from page 19)

face. As he levelled off at 2,500 feet, the port engine coughed, then stopped—the fuel had run right out. Tracey feathered the prop and opened the throttle slightly on the starboard engine, at the same time applying a degree of extra rudder thrust to counteract the side-thrust effect of the single engine.

'I'll hold her at two thousand, Digger,' he said, 'and we'll press on . . .' He was cut short by a wild yell from Digger.

'Look! Over there!' he shouted, pointing at the horizon. 'A ship! Try and ditch over there, cobber. I'll plug Tiddles before we go down and we might make it.' His Australian accent was thick and reassuring in his excitement and Tracey felt a wave of relief sweep over him as he gave a quick thumbs-up to Digger.

A chance of landing

The lanky Aussie slid a ·38 automatic from his gun-belt behind his seat and stepped to the back of the flight deck, when a shout from Martin stopped him in his tracks.

'Hold it, Digger—it's the *Furious*. Call her on the Aldis and let them know what's going on. We might be able to land on her.' Digger stared at him. The *Furious* was a big carrier all right, but the Dakota was no Fleet Air Arm machine. It had no arrester hook and only one engine working. Trying to put down on the flight-deck of even a big carrier would be just as hazardous as ditching. More hazardous, in fact; because if they went over the edge the Dakota would go straight down—taking the crew with it.

'Go on, then,' snapped Tracey. 'We haven't got all day.'

Guiltily, Digger snatched the Aldis lamp from the rack and the typical clacking of the shutter started. Digger was a first-class signaller and his message rattled out in record time. Tracey circled the carrier as they waited for the reply, which came back in an unexpectedly short time.

Digger blinked at Tracey in surprise. 'It's O.K.,' he said, wonderingly. 'They're going to turn the ship so that she's steaming into the wind. We'll have something like a 30-knot wind to land into and if you can just about stall in, the air officer reckons we can just make it. They are lowering the arrester wires and winding the safety nets up as high as they will go. The crash party is standing by and some marines are ready to deal with the tiger.'

He stopped his long speech suddenly. 'By the way,' he went on, 'have you ever landed on a carrier?'

Tracey grinned. 'Come off it, Digger, R.A.F. pilots don't have carrier training—you know that.' His grin grew broader as Digger's face fell. 'But I did some dummy runs down at the R.N.A.S. station at Ford. They had a dummy deck marked down there and the batsmen showed us how to respond to their directions. Mind you, it was all a long time ago. . . .'

While they were talking, the carrier had steamed in a wide circle and was heading back on her original course. Tracey flew past her for some miles, then turned back to put down on the enormous flight deck. The Navy now uses mirrors for landing their aircraft, but for Tracey's benefit, a batsman was standing by.

"We'll have to belly-flop her,' said Tracey, 'or we'll go straight over the other end. Belt up and stand by for a good, old-fashioned crash landing.' Digger clipped his harness up tightly and moved his legs to one side so that they would not be crushed against the controls if the crash were a bad one.

Tracey throttled back and lowered the flaps. The Dakota's speed fell rapidly and the one-sided effect of the single engine made itself more apparent under the difficult flying conditions. The 'wheels-up' warning suddenly cut in with a screech as the speed dropped down to 80 m.p.h., but both flyers were much too busy watching the huge flight-deck of *Furious* looming up to pay any attention to that.

Crash landing!

The massive end of the deck seemed as big as a cliff and, in spite of the constantly-dropping air speed, it looked as if they were racing towards the carrier. Tracey made a violent mental effort to concentrate on the batsman who was plainly visible. His arms holding the big orange indicators, flipped violently upwards and Tracey lifted the nose of the Dakota. The aircraft wallowed as the strain came on it but it made it.

Port wing down . . . level now . . . down a bit . . . down a bit . . . down a bit. . . . Both flyers were breathing out loud as Tracey followed the batsman's directions—then they were on! The Dakota bit into the deck with a vicious screech and Tracey slammed the throttle shut. Digger cut the ignition and shut all electrical circuits off at the same time as the 'plane bumped along the deck.

The crash crew was staggered all along the deck with fire extinguishers ready and every fourth man was clad in the weird robot-looking garb of asbestos. The Dakota swung to one side as a propeller blade dug into the deck and Tracey kicked the rudder hard over. The blade snapped off and the aircraft straightened up a little. The control island was looming up terrifyingly large and, try as he could, Tracey could not avoid it. The port wing tip hit with a shattering crash and the 'plane spun round and skidded crazily to the side of the carrier.

Pieces were breaking off everywhere and, still turning, the Dakota ground towards the edge of the deck. The island was past and the aircraft had turned in almost a full circle when, with a shattering crash, the tailplane smashed into the safety-net supports.

Crash crew in action!

The impact was sufficient to rip the entire tailplane right off—but it had a beneficial effect. The forward motion of the Dakota was exhausted and, with a final crash, the 'plane stopped perilously close to the nets. The crash crew moved in like lightning with foam spurting over engines and round the aircraft's doors. Behind the fire-fighters were half-a-dozen marines with rifles—but none of them were needed.

Martin and Digger climbed slowly out of the wrecked plane and surveyed the damage. One aeroplane completely wrecked, the deck of an aircraft carrier scarred; the control island damaged at one point; the safety-net posts buckled. . . . Digger gloomily tried to cost the damage and gave up. He hoped the owners of the Dakota had a good Lloyd's insurance, otherwise he and Tracey would be in prison for the next ten years!

A marine ran up to Digger. 'Where's the tiger, sir?' he asked. Digger grinned. 'Sleeping like a kitten all through,' he replied. 'I'm not sure what happens now. Perhaps the Master-at-Arms can put it in the detention cells.'

A thought suddenly struck Digger and he turned to Martin. 'Here, how did you get down so quickly?' he asked. 'You know how tough security is. Why should the Navy be so nice to an unknown civil aircraft?

'Influence, old boy,' replied Tracey. 'When I saw the carrier was *Furious*, I remembered reading in the paper that Commander Briggs had been appointed Executive Officer. And Commander Briggs was a sub-lieutenant in the R.N.A.S. at Ford when I was doing those dummy runs. We had a party one night that none of us will ever forget and the rest was easy.'

He broke off as a naval officer walked towards them. 'Here he is now,' he whispered to Digger. 'We'd better tell him how sorry we are for knocking his ship about!'

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You may submit as many questions as you like. We will deal with as many as possible each issue.

On one rail

Q. *Are there any books on the world's monorail systems? Are any monorails in public service; and can you tell me anything about the Safege system?—M. R. C., Edgware.*

A. Monorails have been tested since 1824, when a horse-drawn system was built in the London Docks. First passenger system relying on steam-engines, opened in 1888, linked Listowel with Ballybunion, Co. Kerry, until 1924. Other systems have been tried in the U.S.A., France, Japan and Germany, where the Wuppertal *Schwebebahn* has been carrying commuters since 1901. In these days of crowded cities, the monorail is being taken more seriously, and the French Safege system may link London Airport with the City by 1967. A new city in Buckinghamshire with a free monorail transport system is also planned. For details of existing systems see *Unusual Railways* and *More Unusual Railways*, by John R. Day (Frederick Muller, London).

Who's Zoo

Q. *How many animals are there in the Zoo, and how many humans go to see them in a year?—'Teasy-wheezy', Sanderstead, Surrey.*

A. The London Zoo's annual census gave a total of 6,482 animals on December 31, 1964. Of these, 756 were mammals, 468 reptiles, 1,423 birds, and 2,165 fishes, the rest being insects and other species. During last year 1,815,969 people visited the Zoo —38,000 more than in 1963.

Distant planet

Q. *How far is Pluto from the Sun?—Michael Smith, Mansfield, Notts.*

A. Pluto's orbit is so eccentric that the planet can come within 2,766 million miles of the Sun at its nearest; yet, at its farthest, it is 4,566 million miles away. Its mean distance is 3,666 million miles, and its revolution period is nearly 248 years. Since its discovery in 1930 it has been travelling towards perihelion (nearest point to the Sun), when it will be rather nearer than Neptune, but it will not arrive at this point until 1989. Because of its remoteness and its smallness (about the size of Mercury), we know little about the planet itself.

Photo finish

Q. *Has there ever been a dead heat in the Oxford and Cambridge boat race?—L. U. Harrow.*

A. Yes; on March 24, 1877, when both teams rowed from Putney to Mortlake in 24 mins., 8 secs. An Oxford man broke his oar during the race.

China legend

Q. *What is the story connected with the Willow Pattern?—N. Barratt, Wolverhampton.*

A. The daughter of an ancient Chinese mandarin fell in love with his secretary, Chang, who lived on an island in the river. The mandarin had promised his daughter to another suitor, and locked her up, but she contrived to send a message to Chang and eloped with him. The two were pursued by the mandarin and the rival suitor, but escaped in a boat to the island. Catching up with them, the angry father burned down the house where the lovers slept, and their spirits soared to heaven as a pair of doves.

The details of this legend, which was told in China 2,000 years ago and brought home from the East by the Crusaders, are fancifully depicted in the blue and white design of the famous chinaware, first produced in Staffordshire about 1770.

Two-way spelling

Q. *What is a palindrome?—'Clueless Claude', Sheerness.*

A. A word (like *madam* or *level*) or a sentence that reads the same backwards as it does forwards. Examples of palindromic sentences: *Able was I ere I saw Elba* and *Repel evil as a live leper.*

Mike's secret

Q. *What causes the electrical resistance of carbon to vary with changes of pressure, as in a microphone?—D. Sutherland, Argyll.*

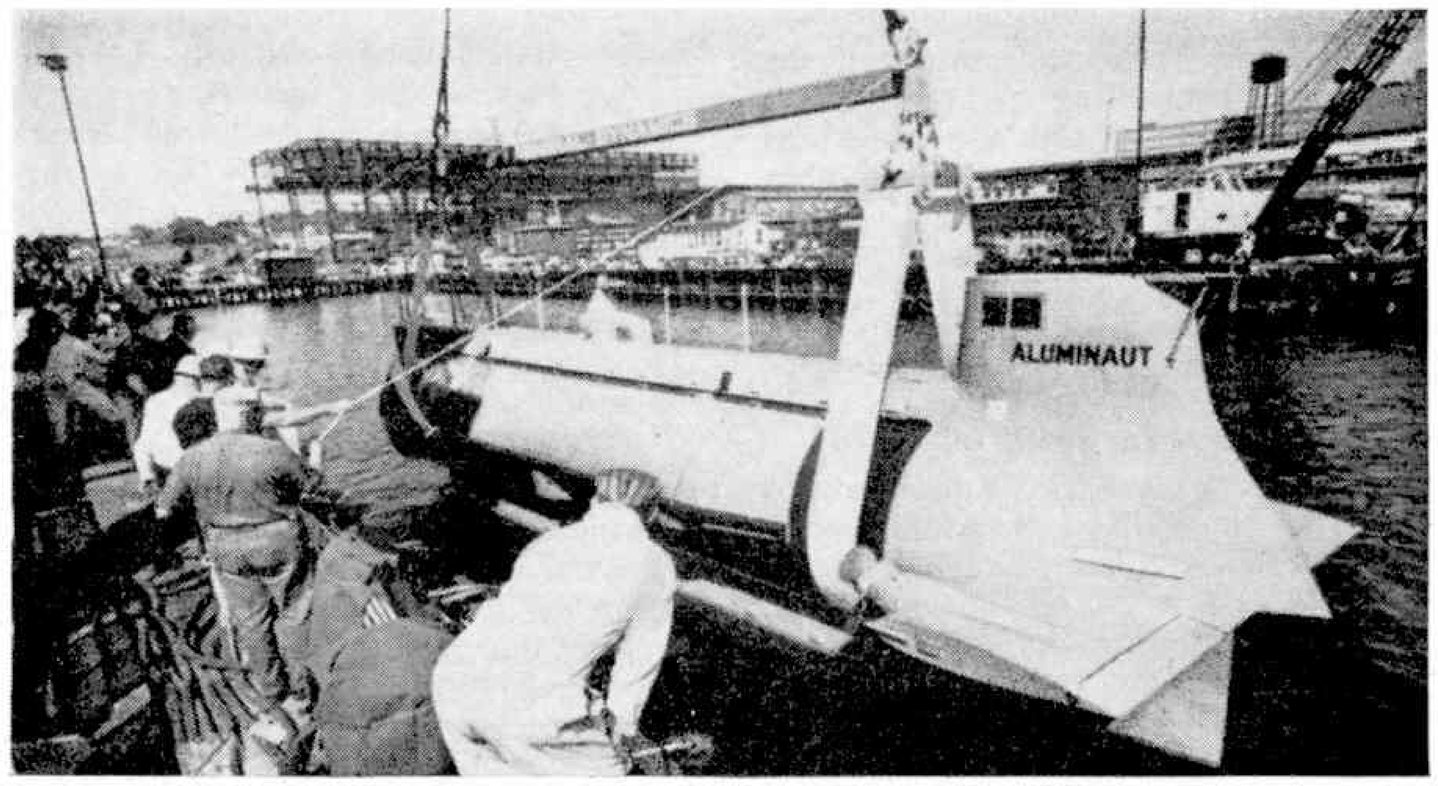
A. Behind the diaphragm of a carbon microphone—as used in the telephone—is a container filled with loosely-packed grains of carbon. While in this state, the carbon does not conduct the electric current flowing in the circuit; but when sound waves strike the diaphragm the carbon granules are packed more closely together, providing a passage for the current. As the diaphragm vibrates to the pressure of the sound waves, the resistance of the carbon varies, causing fluctuations in the current. Professor David Hughes, who coined the word microphone, was the first to demonstrate this principle in 1878, after Edison had used a solid carbon block in his transmitting instrument.

Submarine survey

Q. *Why can't submarines be used to explore the ocean-bed?—'Nautilus Ned', Birkenhead.*

A. It shouldn't be long now! A new research submarine, the *Aluminaut*, which can descend to depths of three miles—more than 15 times the maximum depth for an ordinary submarine—was launched a few months ago at Groton, Connecticut, before undergoing sea trials off Bermuda (*See picture*). Built of aluminium, 51 ft. long, and carrying a three-man crew, it is designed to stay submerged for three days and to travel underwater for 100 miles. With about 60 per cent of the ocean-floor accessible to it, *Aluminaut* may make startling new discoveries in oceanography and marine biology, as well as helping in oil drilling, undersea mining, and salvaging sunken ships. Other nations are also preparing for a mass-assault on 'inner space' in the next few years.

The Aluminaut submarine being launched at Groton, Connecticut, U.S.A.



Radio Controlled Models

Part 4

BEFORE I deal with building and testing a radio control transmitter, here are a few notes about the G.P.O. Licence which is necessary before you can operate radio control equipment. The licence costs £1 and covers a period of five years. It is a special licence authorising the use of carrier or CW operation with or without tone or frequency modulation in the frequency band 26·96 to 27·28 megacycles with a maximum radiated power of 1·5 watts.

The licence also covers the second radio control frequency band of 464 to 465 megacycles with a maximum radiating power of 0·5 watts. This second band is a difficult one to operate in and is rarely used except by experienced radio control enthusiasts.

The licence is issued only for the purpose of controlling a model vessel, aircraft or vehicle and the apparatus used must not interfere with other wireless stations or receiving equipment. Further details concerning the radio control licence and an application form can be obtained from the Radio Services Branch, G.P.O., London, E.C.1.

A Transmitter for Radio Control

Transmitters used for radio control are fairly simple devices, usually consisting of an oscillating valve or transistor run at low power and employing a circuit designed to prevent the operating frequency from drifting outside the allocated frequency band. This latter requirement is most important since operation outside the band could cause interference to other sources. Some transmitters employ what is known as a self-excited oscillator with a reasonably efficient tuned circuit designed so that the transmitter will remain tuned as close as possible to its operating frequency. There are also self-excited oscillators which employ a quartz crystal in place of the tuned circuit and which are extremely stable and will not drift at all. This type of transmitter cannot be tuned to another frequency in the band without changing the crystal.

However, a well-designed 27 m/c transmitter, such as the Macgregor basic carrier wave model, is sufficiently stable for radio control although it employs a self-excited tuned oscillator. Like the 27 m/c receiver described last month it is assembled on a printed circuit board and construction from the kit is simplicity itself. The tuning coils and choke are ready wound and one has little more to do than mount the components as shown in Fig. 1 and solder up. Incidentally, this transmitter can be modified for tone control operation if desired, see Fig. 2.

The Macgregor basic carrier wave transmitter will operate very efficiently with the carrier control receiver. The Editor of this magazine will no doubt confirm this as he was present during some trials with the model Constellation launch, see front cover of March issue.

The assembly and wiring of the transmitter calls for little comment since the instructions provided with the kit cover everything including testing. However, do take care with soldering and connections to batteries, etc. Remember that one poorly soldered wire or a bad connection could easily stop the transmitter from working altogether.

Tuning the transmitter

The printed circuit board is mounted directly on to the front of the transmitter case as shown in Fig. 3. Before the transmitter can be used it must be tuned to within the model control frequency band of 26·96 to 27·28 megacycles. The first thing to check, however, is that the transmitter is working correctly by measuring the h.t. current. This should be between 12 and 20 milliamps.

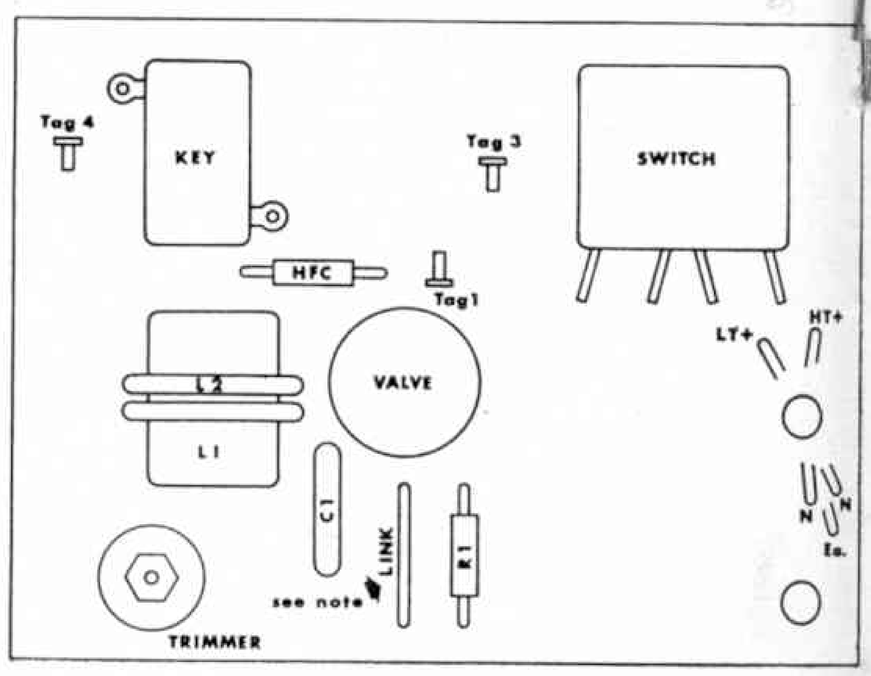
The approximate setting of the tuning capacitor for the model control frequency band is about one and a quarter turns from the closed position and will be accurate enough for preliminary tests indoors with the receiver. More accurate tuning can be carried out in conjunction with a receiver known to be correctly tuned or if this is not possible, most model and radio control shops will set the transmitter correctly in the band for a small charge.

Alternatively, you can return the completed transmitter to the makers who make a service charge of 5s. for the tuning. This does not, however, include the cost of return postage. Details of this service are given in the instruction book.

Testing the complete system

It must be assumed now that the receiver and control system have been installed in the model and that the transmitter is correctly tuned and operating. The first check then is to see that the receiver itself is functioning and then tune it correctly to the transmitter. As described in the previous articles, an 0-5 milli-amp meter is required and is connected as in the receiver instruction book. The transmitter is then switched on and the

Fig. 1. Component layout on the 27 m/c radio control transmitter printed circuit board. As can be seen, the layout is extremely simple and may be constructed easily by the amateur.



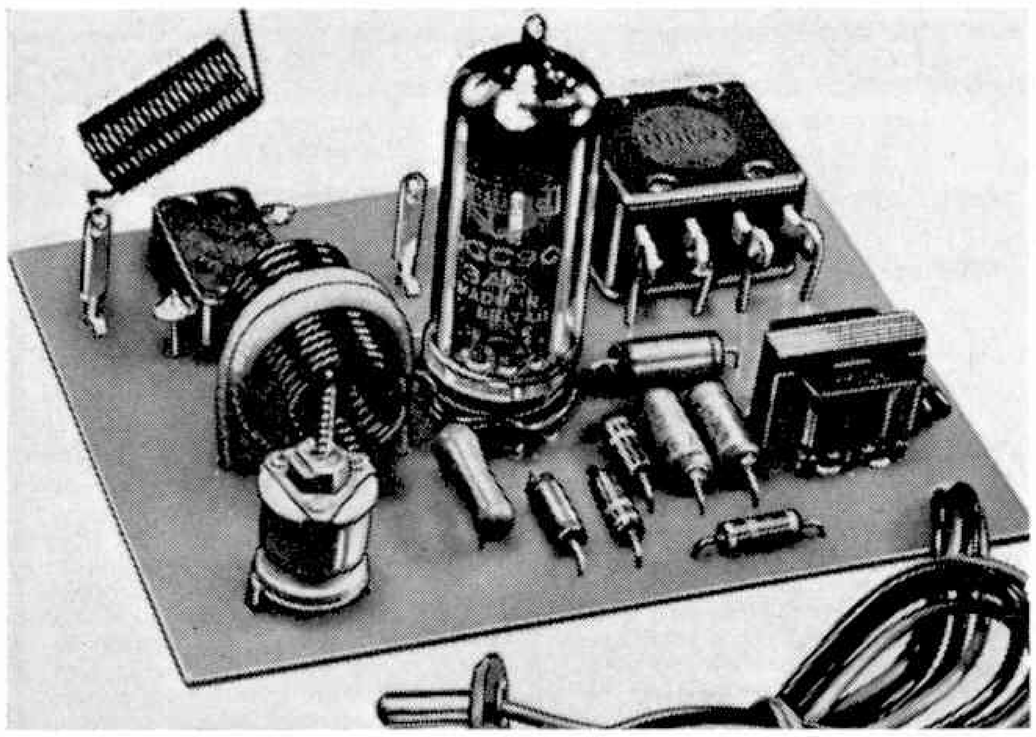


Fig. 2—The completed transmitter ready for fitting in its case. Note: the photograph shows the extra components for tone control operation which are not required for carrier wave unit.

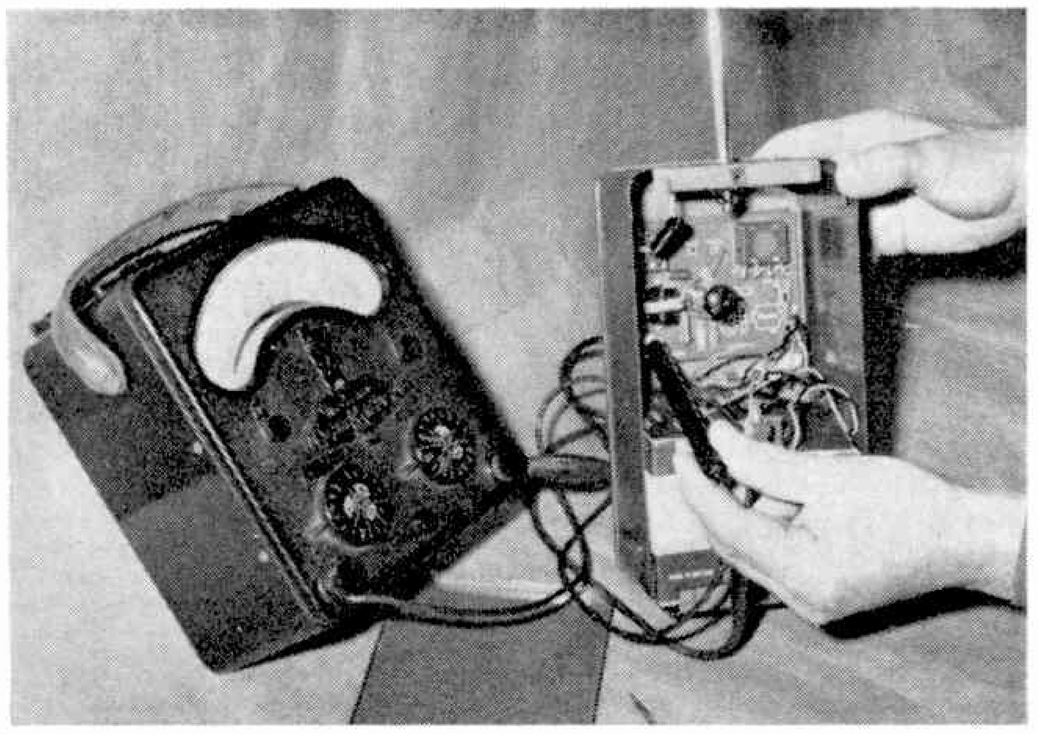


Fig. 3—The transmitter mounted in the case. An insulated trimming tool or a short stick of non-conducting material, shaped to fit the tuning capacitor, should be used for tuning as shown.

tuning procedure carried out exactly as the maker's instructions.

When this has been done and this includes the correct operation of the actuator, a long range check should be carried out by placing the model as far away as possible, say at the end of the garden, or at least one hundred feet away. Alternatively, the transmitter can be taken some distance away. The model itself should be set up so that the bongo drive is free to operate, i.e. the rudder section can move freely and the propeller can rotate.

The complete system can now be checked by going through the sequence required for steering—rudder left—-—neutral—right and return to neutral, etc. The engine control sequence of forward—-stop—reverse—stop, etc., and, of course, other combinations such as engine start—left rudder, engine reverse—right rudder, and so on. The same checks should also be carried out at close range, i.e. transmitter only a few feet from the model.

Sailing the model

When, and only when, you are completely satisfied that all is working correctly, should the model be taken to the local boating pool. If possible, choose a pool which is shallow and not too big. Some parks have special small pools about 100 feet long for model boat enthusiasts and which are only a few inches deep. Don't put your model in a river as you may find the current strong enough to override the power of the motor. Do have someone with you for safety and to help recover the model should something go wrong. Watch out for dead leaves and weeds which can foul up the propeller and stop the model. If this happens in mid-pond, try reversing the engine for a few seconds to clear weeds or leaves.

If your model does stop in the middle of the pond and won't respond to the radio, there is no need to paddle in after it. Always carry with you a long piece of string; long enough to stretch across the pond. You take one end and your assistant the other and catch the model by gently dropping the string over it. Then walk on until the model is pulled into the side of the pond. Watch out for ponds with concrete sides as a model such as the Chris Craft Constellation with a monoperm motor can travel quite fast and you could damage the hull if it hits solid concrete at full speed.

Finally, a word about power for the driving motor. This can be a dry battery, of course, $4\frac{1}{2}$ or 6 volts, but it is more economical to use a re-chargeable accumulator. These are expensive to buy, but will last for years if properly looked after and always kept fully charged. At the end of a two or three hour run, the small accumulators used for models will be pretty well exhausted. Never leave an accumulator in this state or the plates will be ruined.

To complete this series of articles on radio control in which it has been possible to cover only one aspect of the subject, I have included details of two books which deal with radio-controlled models more thoroughly. From either of these, which are suitable for beginners, you can see that radio control is a fine and fascinating hobby that thousands of people all over the world practise and enjoy.

Next month, I will be writing about an equally fascinating radio hobby namely Shortwave Listening and which naturally leads to Amateur Radio Transmitting, the ambition of many who take up radio as a pastime.

Useful Books—suitable for beginners: Radio Control for Models, by F. C. Judd—Data Publications, 15s.; Radio Controlled Models, by R. H. Warring—Museum Press, 16s.

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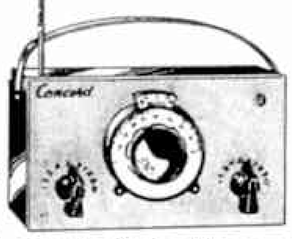

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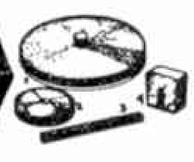
High Power MAGNETS



HORSESHOE MAGNET, Alcomax III. Size only ⅞ in. × ⅜ in. × 1 in., **but lifts 8-9 lbs or about seventy times its own weight.** Compact, pocket shape, finished durable red crackle and complete with keeper. *4/- p. & p. 9d.*

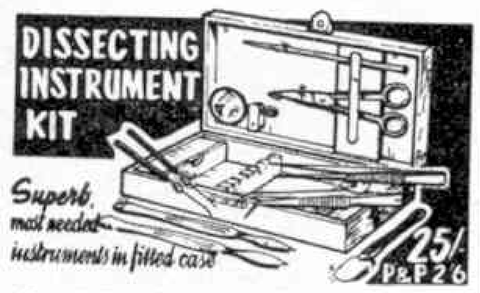
LIMPET MAGNETS: Type 1—Feroba. A powerful ceramic magnet contained in black enamelled mild steel case that will retain its full power in a lifetime of use. **Lifts a tremendous 65 lbs.** 3½ in. diam. × ⅜ in. thick. Does not require keeper. **12/6** *p. & p.* **1/-.**

Type 2.—Hycomax II. size only 1½ in. diam × ½ in. thick **but made of fantastic new material that provides a lift of 45 lbs.** Finished in grey crackle and complete with keeper. Drilled centrally to take lifting screw. **8/-** *p. & p.* **1/-**

ELECTRO-MAGNET

Powerful unit specially made for Proops for demonstration purposes and experimental use. Operates from 12 v. D.C. **and continuously rated to lift ¾ lb.** Size overall 1 13/16 in. diam. × 1⅞ in. high and tapped 4BA at top to facilitate permanent mounting. Magnet contact area 1⅛ in. diam. **8/6** *p. & p.* **1/-**

DISSECTING INSTRUMENT KIT



Carefully chosen kit of high-grade instruments most often required in Biology, Botany, Zoology, Anatomy. Hinged fitted wooden case contains: fine tip and half blunt, surgical tempered steel scalpels, straight and curved type removable probes in chuck type holders, straight and curved medium point forceps, pair of bandage type dissecting scissors, blowpipe, spatula, and mounting pins. Instruments are heavily plated, ground and polished. A first class set suitable for advanced studies.

MICROSCOPY KIT

25′- PP 2/6

Almost a portable laboratory. Carefully chosen selection of all necessary accessories for proper preparation of microscope slides. Contains equipment for collecting, fixing, dyeing, dehydrating, clearing, mounting, finishing, labelling, drying and storing of subjects. Includes 24, 1″ × 3″ slides, coverslips, labels, tweezers, scalpel, dropper, probe rod, collecting vials and dishes, 4 bottles dehydrating fluid (70%, 80%, 90%, 100% alcohol), xylol, clearing fluid, Gates fixing fluid, Canada balsam, 2 vials dying fluid. Complete with instructions.

Make simple AUTOMATIC CONTROLS with CADMIUM SULPHIDE PHOTO-CELLS

New inexpensive photo conductive cells which act as light sensitive resistors that increase conductivity with increased light, 1,000 times more sensitive than selenium cells, great reliability, easily built into a wide range of simple circuits. Typical uses: automatic light controls for home and car, flashing warning lights, exposure meters, brightness controls, relay operation, etc. Low power source from battery or mains trans. Two types

TYPE 1—Max. voltage 200v.
Output 0.5W. 10/- *Post free*
TYPE 2—Max. voltage 150v.
Output 0.15W. 8/6 *Post free*
Resistance range of both types is 5 megohms at zero to 500 oms at 100 lux. Sensitive range is 400-800 mu. Supplied with specifications instructions and typical circuits.

MAGNIFICENT MODEL MOTORS

Specially designed for mechanical models, battery powered apparatus and quality toys. Provides twice the power of ordinary motors of same weight. Each totally enclosed in steel case. *Wide range of models stocked:* **(1½-3 volts)** No. 15-6700 r.p.m. 1⅝ in. × ⅞ in. diam. **2/6.** No. 35-5900 r.p.m., 1¾ in. × 1 1/16 in. diam. **3/6.** No. 55-4400 r.p.m., 2 in. × 1⅜ in. diam. **5/6.** 15R/1812 **(4½-9 v.)** 9200 r.p.m., 2 in. × ⅞ in. diam. **6/-.** 15R/1420 **(12-13½ v.)** 12300 r.p.m. **6/6.** 35R/2512 **(4½-10½ v.)** 6900 r.p.m., 2 1/16 in. × 2 in. diam. **8/-.** 35R/1820 **(12-16 v.)**, 9300 r.p.m. **9/-.** Add 1/- Post and Packing. Mounting brackets 9d. extra. Send stamp for full performance and installation details of all types.

Make Your Own Floats

FOR the do-it-yourself angler, shops that specialize in materials for model making are of particular interest. Here can be obtained most of the items necessary for making floats.

Many shop-bought floats are excellent, but often the range available is not great. Until recently only a few small firms bothered to make an antenna float which was really suited for its job.

The antenna float is designed for fishing still water or slow-moving rivers on windy days. It is also extremely sensitive, particularly for registering 'lift' bites. When a fish lifts a shot off the bottom of the river bed as it takes the bait, the reduced weight acting on the float will cause the antenna to pop up in dramatic fashion.

Most floats have their buoyancy centred nearer the top of the float than the bottom, but with antenna floats this factor is reversed. And on days when the choppy surface of the water resembles a miniature sea, a float with its centre of buoyancy low down is the one to use.

Below the troubled surface, the water is still calm—and that is where the main bulk of the float lies to serve as an anchor for the slim antenna which has to bear the brunt of the surface commotion. The small surface area of the antenna has a streamlining effect

To get maximum benefit from an antenna float, fix the line to the bottom ring only. About 2 ft. above the float, pinch on a small shot (dust shot, or a size 3, 4 or 5). Then shot the tackle in the normal way so that only the tip of the antenna will ride above water. After casting, dip the end of the rod under water and quickly wind in a few yards of line until all the line is submerged. This method helps to prevent line and float being blown about by the wind. A point to note: When fishing at long range with a sunken line, a more vigorous, sweeping strike is needed to connect with a bite than is the case when most of the line is held off the water.

An antenna float to 'rule the waves' is easy enough to make. To work well, the overall length of the float should be at least nine inches. The actual antenna can be made of cane (12 inch lengths of cane, already split, can be bought cheaply from florists) or lengths of $\frac{1}{16}$ in. and $\frac{1}{8}$ in. diameter balsa dowel from a model-making shop. Balsa dowel, although nothing like as tough as cane, has the advantage that it is already shaped.

A length of balsa wood ($\frac{1}{4}$ in. $\times \frac{1}{4}$ in. $\times 3$ ft.) is ideal for making float bodies. I shape the body after fitting the stem and antenna. Shape the body roughly to size with a sharp knife—a Stanley trimming knife or an Exacto tool is useful for this purpose. Finish off with Garnet paper (8d. a sheet). This lasts longer than sandpaper.

Boring a hole right through the centre of the balsa body can be tricky. An easier alternative is to make a hole about an inch deep at each end of the body (see diagram 1). This can be done with a darning needle, knitting needle, or a rat-tailed file.

The wire float ring should be non-rusting so use brass wire. For 2s. 6d. you can buy enough wire from an ironmonger to last for years of float making. Whip the ring on with nylon thread, binding from the bottom of the float towards the top. Whipping can also be used to add strength to the points where antenna and stem join the float body.

Humbrol clear varnish and fluorescent and matt paints are available in small tins costing about 9d. A white base paint is generally needed beneath the vividly coloured paints suitable for float tips. Balsa is porous, so seal it well by giving it at least three coats of varnish.

Make a float attachment

Considering their usefulness, float attachments are not as widely used by anglers as one would expect. The main functions of these attachments are to facilitate float-changing and to enable a float to swing freely on the line even though it is set at a fixed depth.

The necessity to change a float may often arise; a sudden change in weather conditions may call for heavier or lighter tackle, or you may find that the float being used is unsuitable—it's not sensitive enough, or the tip is of a colour which does not show clearly against the background of the water. When this occurs, you are far more likely to make the required change if you know that it can be carried out in a matter of moments.

The advantage of a true 'swinging' float may be less obvious, but you will find that the attachment acts as a sort of independent suspension which minimizes the effect of wind on the float. By reducing wind drag on the tackle, an angler is able to present the hook bait in a natural way.

Another advantage is that, because the attachment is fastened only to the bottom ring of the float, the float creates far less disturbance on the surface of the water when a strike is made than is the case with a 'fixed' float.

Even a float secured to the line by means of a short length of valve rubber, at one end, is not completely free-swinging. Unlike the true swinger, it sets up resistance when a strike is made because the float does not follow in exactly the same plane as the line (see diagram 3).

Negligible cost

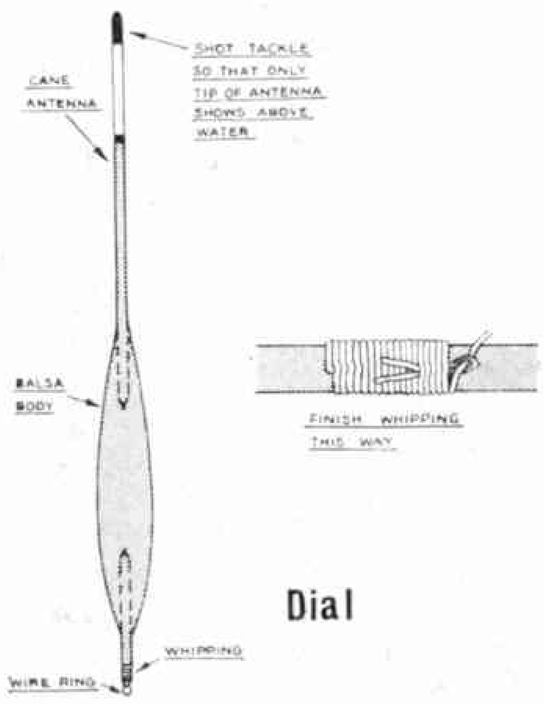
Excellent float attachments can be bought from tackle shops for about 1s. 6d. Usually they are made of light alloy so that they scarcely alter the normal shotting of a float. A satisfactory attachment can easily be made from a piece of cane approximately half-an-inch long and $\frac{1}{8}$ in. in diameter. To one end of the cane whip on a loop of non-rusting wire to secure an American swivel (6d. from your tackle dealer—see diagram 2).

The cane attachment is fastened to the line by being inserted into a piece of valve rubber of identical length. It will be found that any float attachment adds to the stability of a float in water and this is especially so if a cane attachment about 2 in. long is used.

Swinging floats and float attachments are normally used in still or very slow-moving waters, but a two-inch attachment also works well in rivers of reasonable flow, particularly when there is a strong upstream wind. On windy days, when orthodox top-and-bottom floats are being blown about, give the attachment rig a try—it can help you trot a float with the current more smoothly.

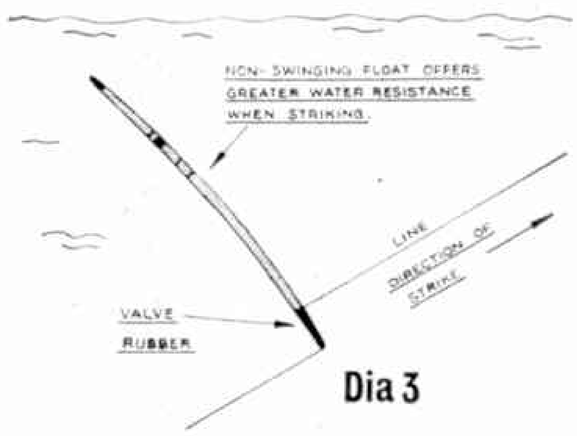
Using the longer attachment may reduce the length of your casting, so you may have to add some weight to your tackle in order to cast the distance you want. Still, changing to a slightly larger float is no bother now.

by **J. Crossman**



Dia 1

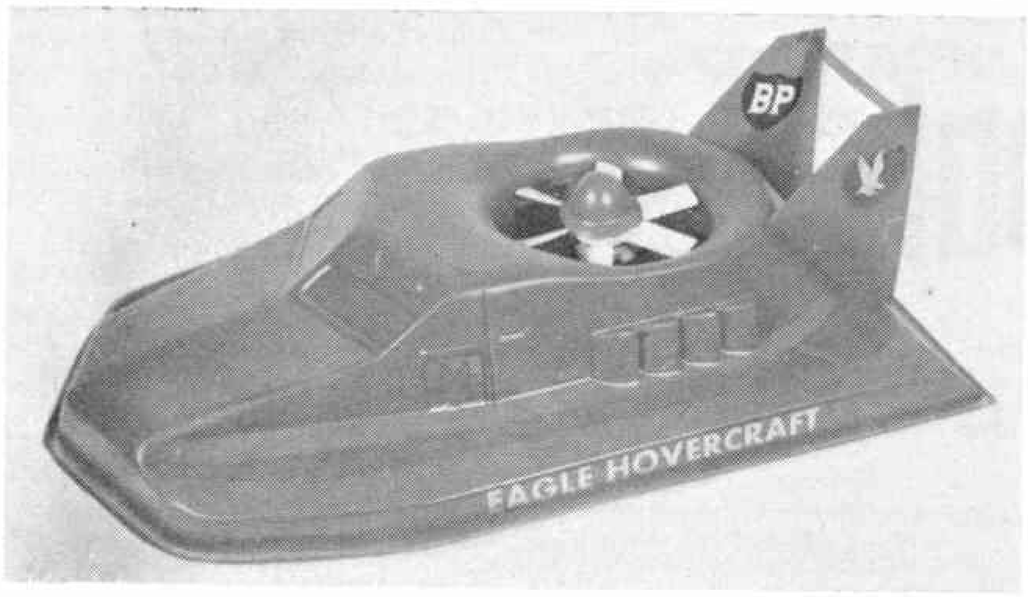
Dia 2



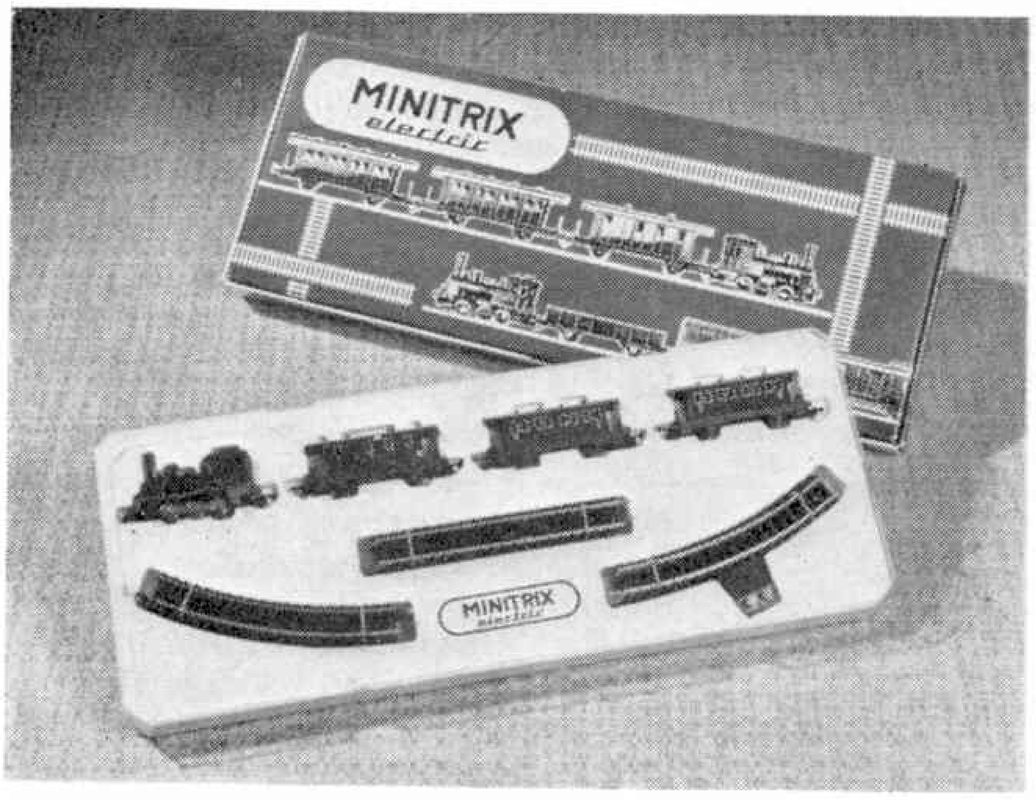
Dia 3

window SHOPPING

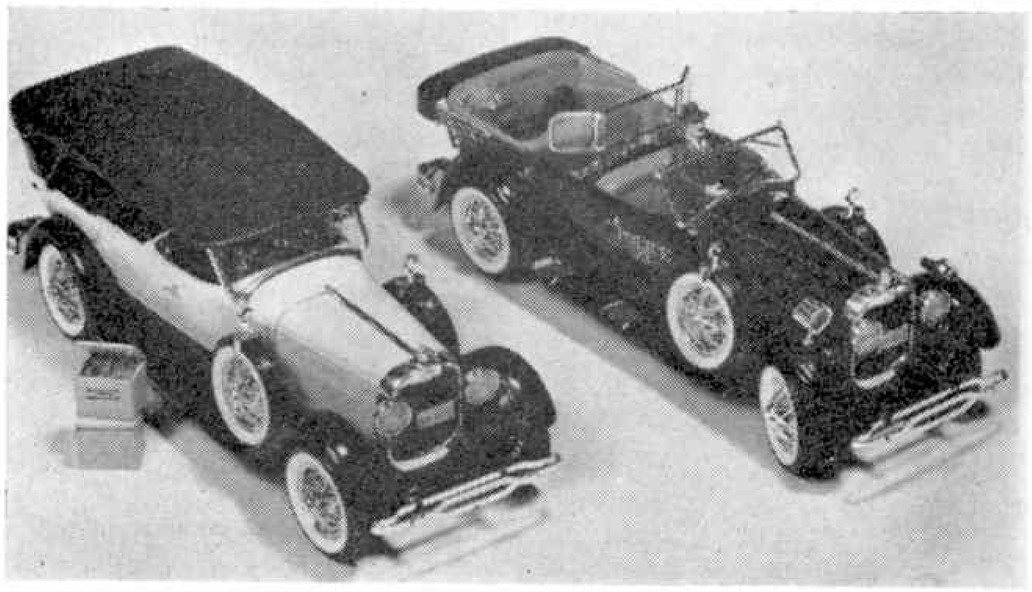
A review of some of the latest and greatest toys and models seen at the Brighton Toy Fair 1965



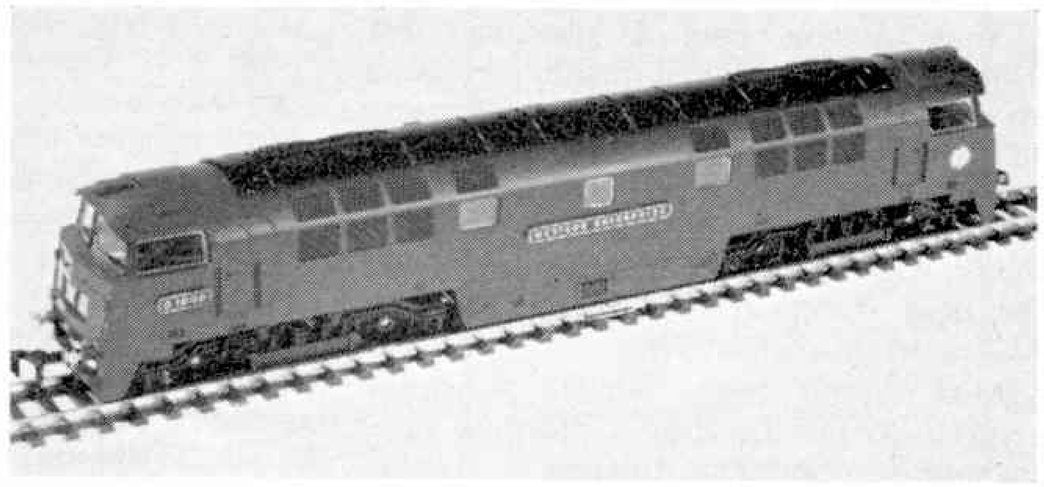
The Eagle Hovercroft is the first fully self-contained model of this type to achieve a true hovering performance. It comes as a completely prefabricated kit which takes less than half-an-hour to assemble. Powered by an electric motor and carrying its own batteries, this attractive model is 12½ in. long and 7½ in. wide. Its weight, complete with two pen-cell batteries, is 3½ ounces. The Eagle Hovercraft is distributed by Ripmax Models and Accessories and is now available from model and toy shops. Price of kit, including transfers, 25s. 11d.



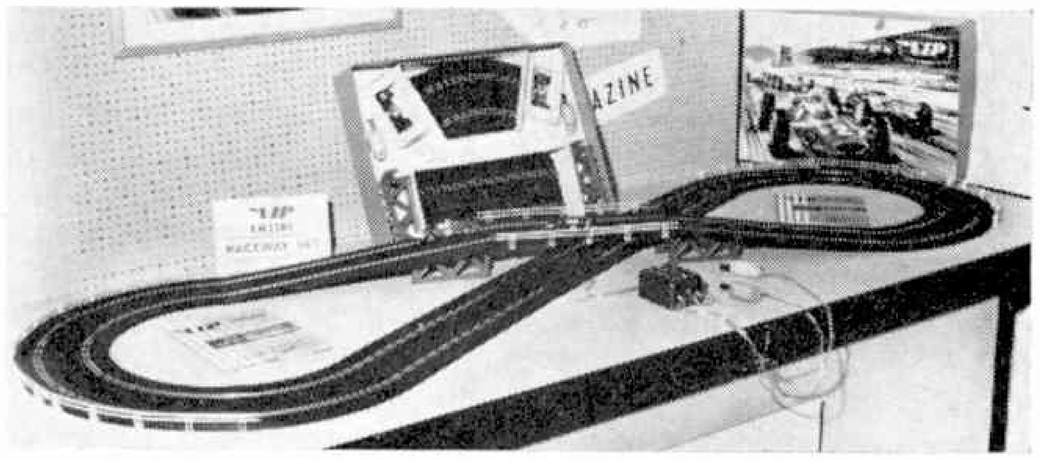
The Minitrix miniature train set is entirely new for 1965 and will shortly be available at most leading toy shops. The train is to '000' gauge and the turning circle has a radius of only 7 in. This means that layouts can be set up in a very much smaller space than previously possible. The price of this set, which includes a loco, three coaches and 5 ft. 6 in. of track, is £6 17s. 6d.



The superb 1928 Lincoln Roadster is the first in the 1/25th scale to be produced by Airfix. The assembly kit gives the builder the option of constructing either the gangster or police pursuit car versions. The car itself has fully-operating steering, detailed chassis and under-bonnet work, plus chromed wire wheels and radiator. The assembly instructions are as complete as the kit which costs 15s. 0d.

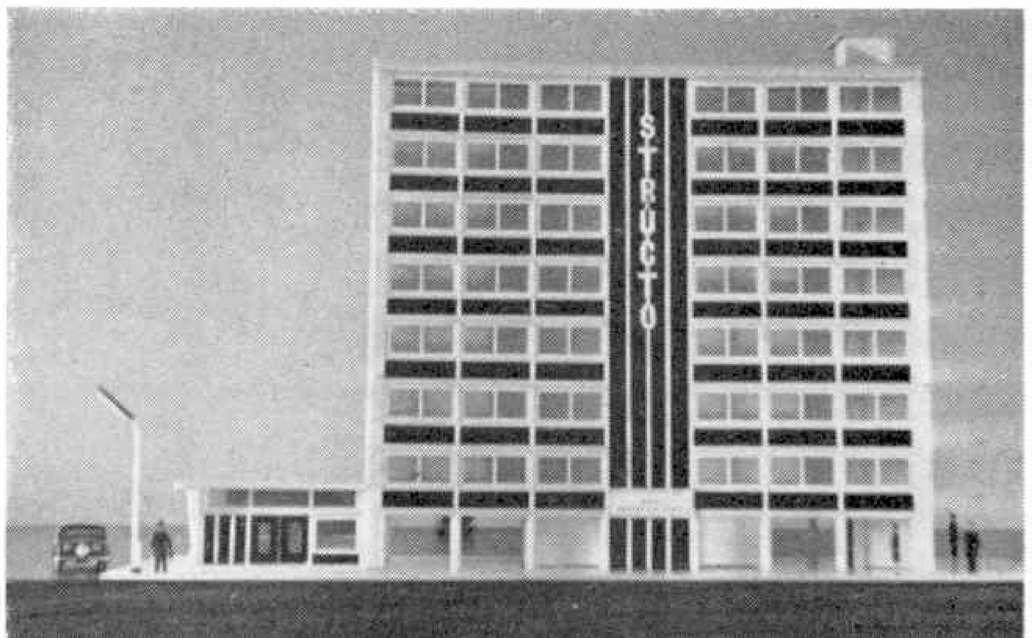


The Trix D.1000 Western Class Locomotive is now available in maroon or green livery and has a powerful 5-pole motor and two 6-wheel bogies. The design is accurately scaled with a wealth of accurate detail including working headlights at both ends. Six different numbers/nameplates are being produced including Western Enterprise, Explorer, Sovereign, Crusader, Vanguard and Viscount. Length of model is 10 in. and price £5 19s. 6d.

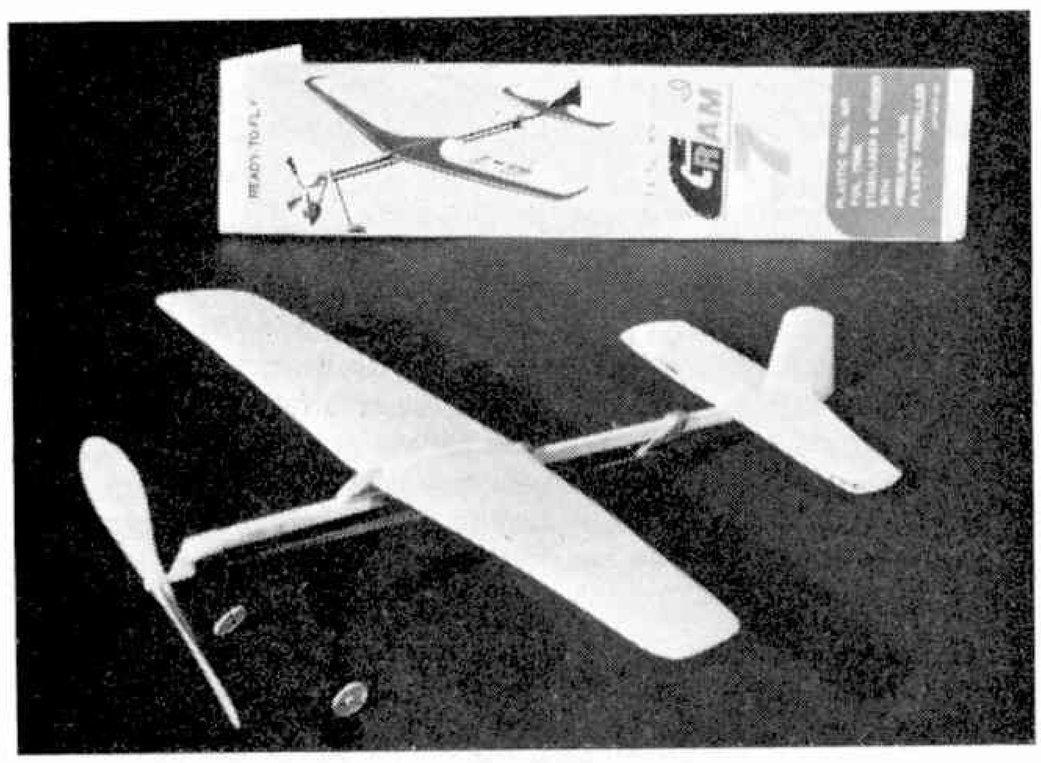


VIP Raceways produce one of the best miniature racing car sets on the market. Perfection of detail in the VIP models is superb and the cars are some of the most powerful available. However, they are really exciting to race and extremely controllable on the special VIP track which is made of rugged, hard-wearing rubber. The 1/32nd scale FRI700 raceway set is illustrated with its figure 8 layout measuring 7 ft. 6 in. by 2 ft. 6 in. For 1965, a slightly smaller version, the FR1100, is planned and this will have an oval track and cost £5 19s. 11d.

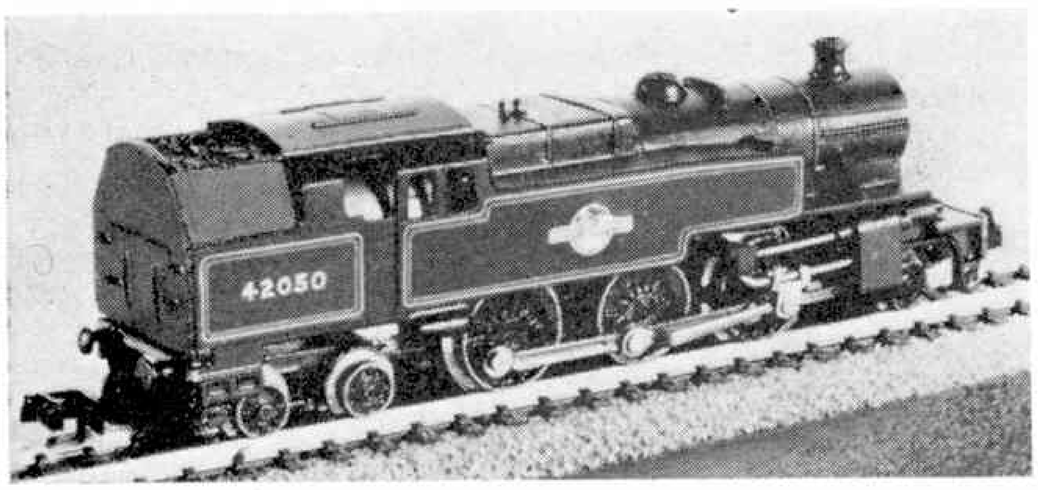
The office block illustrated was built from Structo components and required no painting or finishing of any kind. Ideal to combine with model layouts, the Structo components are ready finished and consequently save a great deal of time and messy work. This particular model is to 4 mm scale and was completed in just under 20 hours.



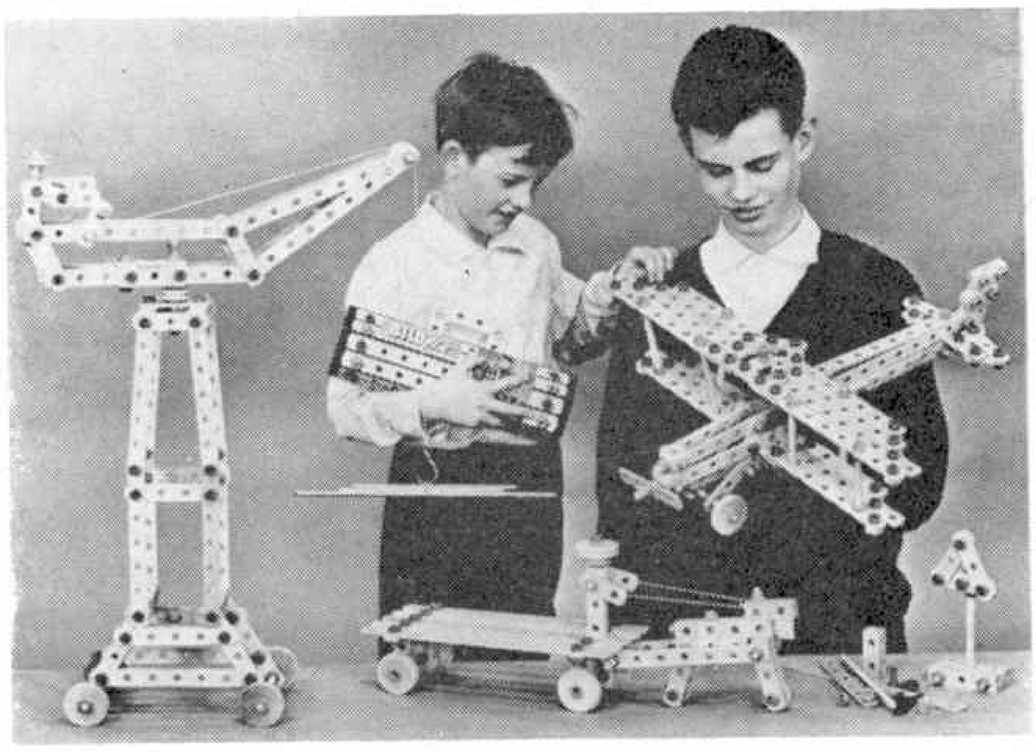
The mechanic in the pits is servicing the Corgi Ferrari 250 Le Mans. This model has wire-spoked wheels, spring suspension, opening rear bonnet to reveal detailed engine, plus spare wheel, seats and dashboard trim. Finished in red with racing numbers, the model is 3¾ in. in length and costs 6s. 3d.



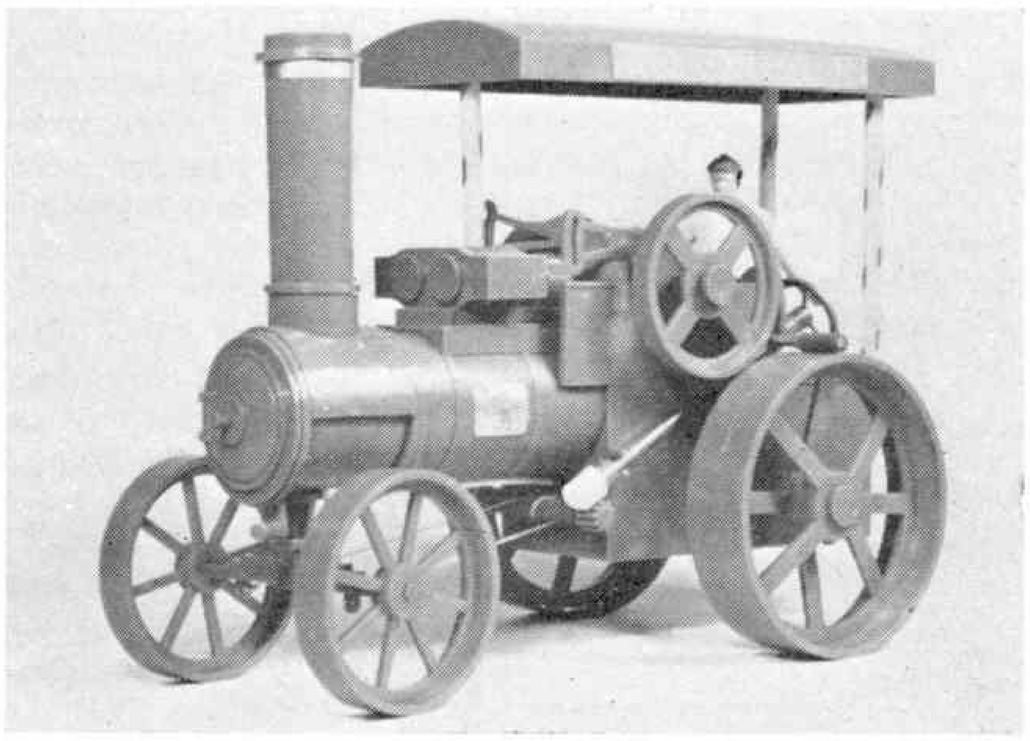
Twelve parts go to make this build-it-yourself, flying model aircraft. Even a complete novice can assemble the model in less than five minutes. A new type of wing construction is used with these 'Gram' models making them almost unbreakable. There are three models with wing spans of 11, 14 and 17 in. respectively and all good model shops should be stocking these Gram models in the near future. Prices for the three models are 2s. 11d., 3s. 11d., and 4s. 11d.



Could you tell from this photograph that the little locomotive, a British Railway 2-6-4 Fairburn Tank, is only 4½ in. long? This diminutive size is, of course, for the increasingly popular 'N' gauge which has a track of only 9 mm. In spite of its small size, this locomotive is capable of pulling over 30 wagons and is one of the new Peco products for 1965. This Loco Body Kit is designed to fit on the standard Arnold 2-6-4 chassis and the kit, complete with full assembly instructions, costs 24s. 6d.



Bilofix constructional sets are made up of selected strips of beech wood, plus large brightly-coloured plastic nuts and bolts. As can be seen by the illustration, a large number of different models can be made, some simple, other complicated. Bilofix is an entirely new constructional set which has only been available for a few months and already it is proving quite popular with the more imaginative boys.

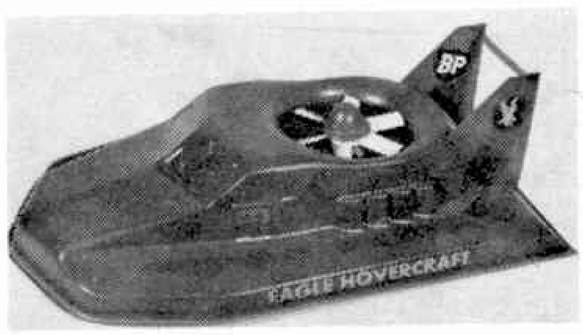


This working model traction engine is built from a snap-together plastic kit made by Scalecraft. A whole range of these models which includes a paddle steamer, seaplane, an MTB boat and a Spitfire, are available and all are powered by a small electric motor. No glue or adhesives are required and the traction engine takes approximately 2½ hours to assemble. The price of a traction engine kit is 9s. 11d., including electric motor and the models can be found in most good toy shops.

ALL - ELECTRIC HOVERCRAFT !

- ✶ Full hovering flight over any flat surface.
- ✶ Adjustable thrust control vents for forward flight.
- ✶ 12½" long by 7½" beam.
- ✶ Stable hovering flight.
- ✶ Weight 3½ oz complete.
- ✶ Kit absolutely complete includes fan, decals, etc.
- ✶ Assemble in 20 minutes.

price only **25/11**
includes SPECIAL ELECTRIC MOTOR



Fully prefabricated in light plastic sheet, SCIENTIFICALLY DESIGNED to give a FULL HOVERING PERFORMANCE carrying its own batteries (two pen cells). Complete instructions.

FROM YOUR MODEL SHOP or write for details.

RIPMAX MODELS & ACCESSORIES
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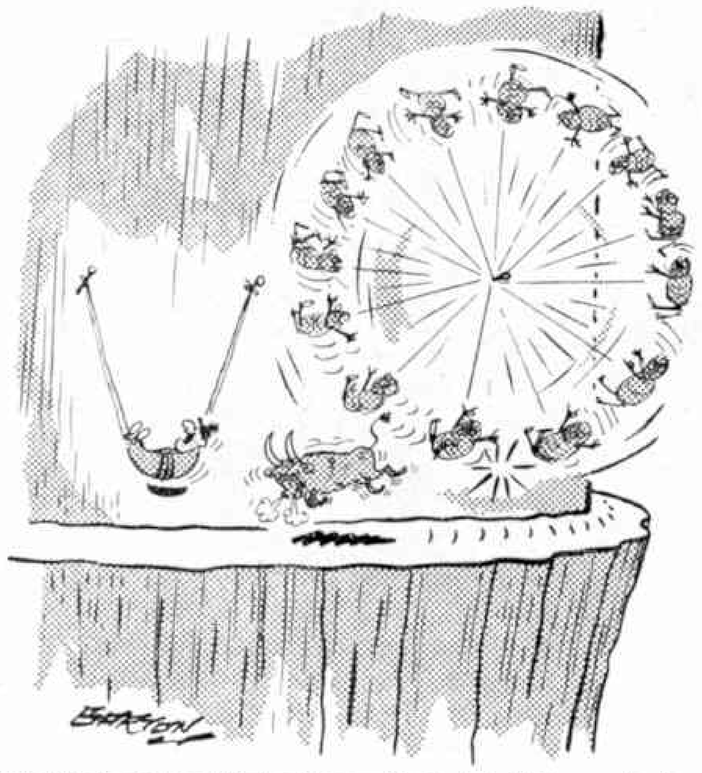
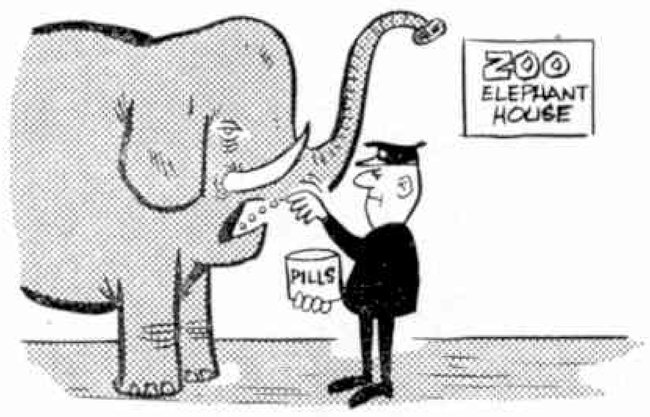
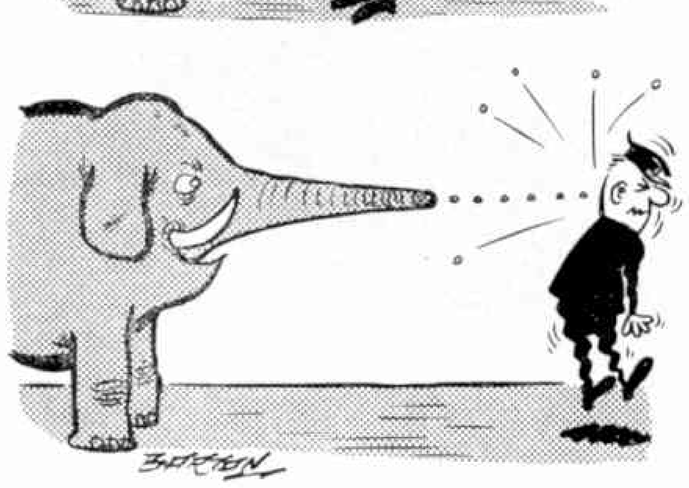
HEARD THIS ONE?



'Well, what d'ya think of your first night bivouacked on a mountain?'





A long step

'How did you break your leg?'
'Threw a cigarette down a man-hole and stepped on it!'

Given the bird

Husband to guest: 'When anything goes wrong in my house, I just get busy and fix it!'

Wife: 'Yes, he fixed the clock the other day—now the cuckoo pops out and asks us the time!'

* * *

A name to regret

'Well, little boy, and what is your name?'
'Shadrach Nebuchadnezzar Brook.'
'Who gave you that name?'
'I don't know, but if I find out when I grow up they'll be sorry for it!'

* * *

Slipped-up

Heard at a Swiss holiday resort: 'Here comes his skis—he can't be far behind!'

* * *

It's in the air

Old lady (to policeman): 'Quick! Quick! I've lost my canary! Will you please notify the Flying Squad!'

* * *

A whale of a story

A famous restaurant had this sign prominently displayed on the wall: 'We make every kind of sandwich in the world. Just ask for it!'

Late one night a joker demanded one sardine and one whale sandwich. The waiter stalled and said, 'I'll have to speak to the manager about this, sir'.

Soon, after a hurried consultation, the waiter returned to the customer. 'I'm very sorry, sir. The boss says he can't cut up a whole whale just for one sandwich!'

'You wanted shorter working hours! This will provide them!'

Follow my leader

A hunter, exhausted and weary, stumbled into the arms of a fellow hunter.

'Am I glad to see you,' he gasped, 'I've been lost for two days!'

'Don't be too happy,' the other groaned. 'I've been lost for a week!'

* * *

Hard to swallow

'Ladies and gentlemen,' shouted the street performer, 'in a few moments I will astonish you by eating coal, stones, glass and nails. I will also swallow a sword; then I will come round with a hat trusting you will spare a few coppers for a crust of bread!'

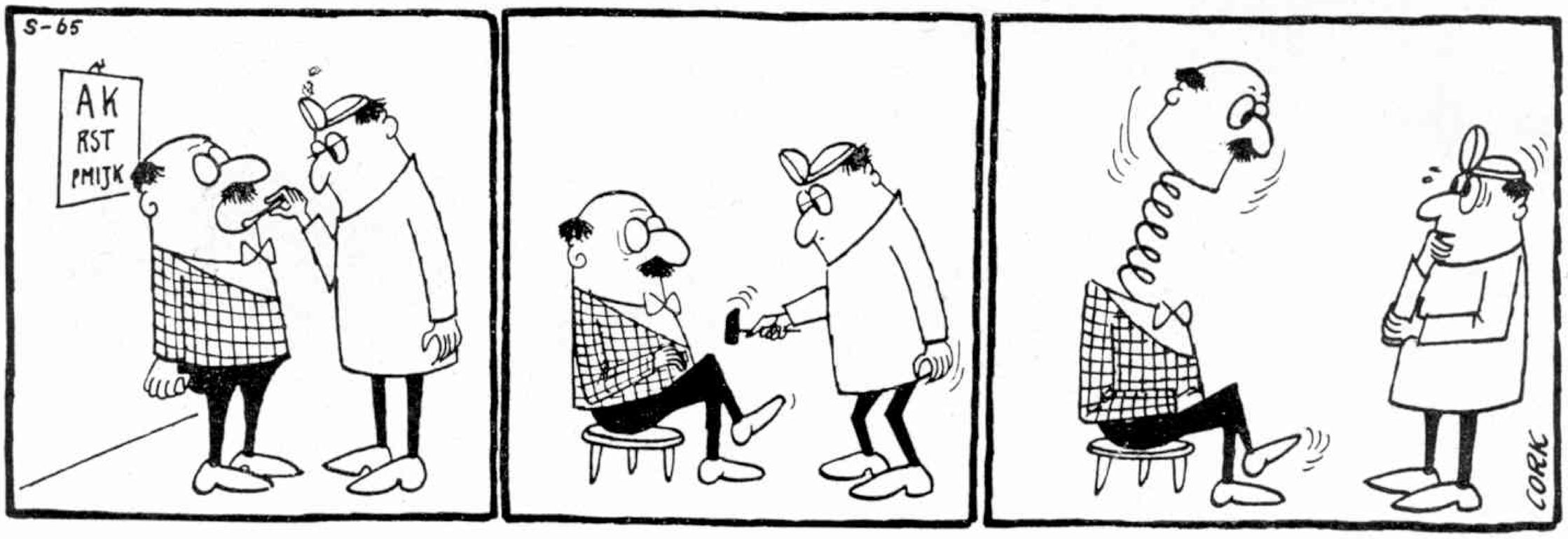
'What?' came a voice from the crowd. 'Still hungry?'

* * *

A tricky operation

Patient: 'Doctor, I'm scared. This will be my first operation!'

Doctor: 'I know just how you feel. This is my first operation, too'.



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MECCANO
DINKY TOYS · HORNBY DUBLO & GAUGE 'O'

DO-IT-YOURSELF DALEK

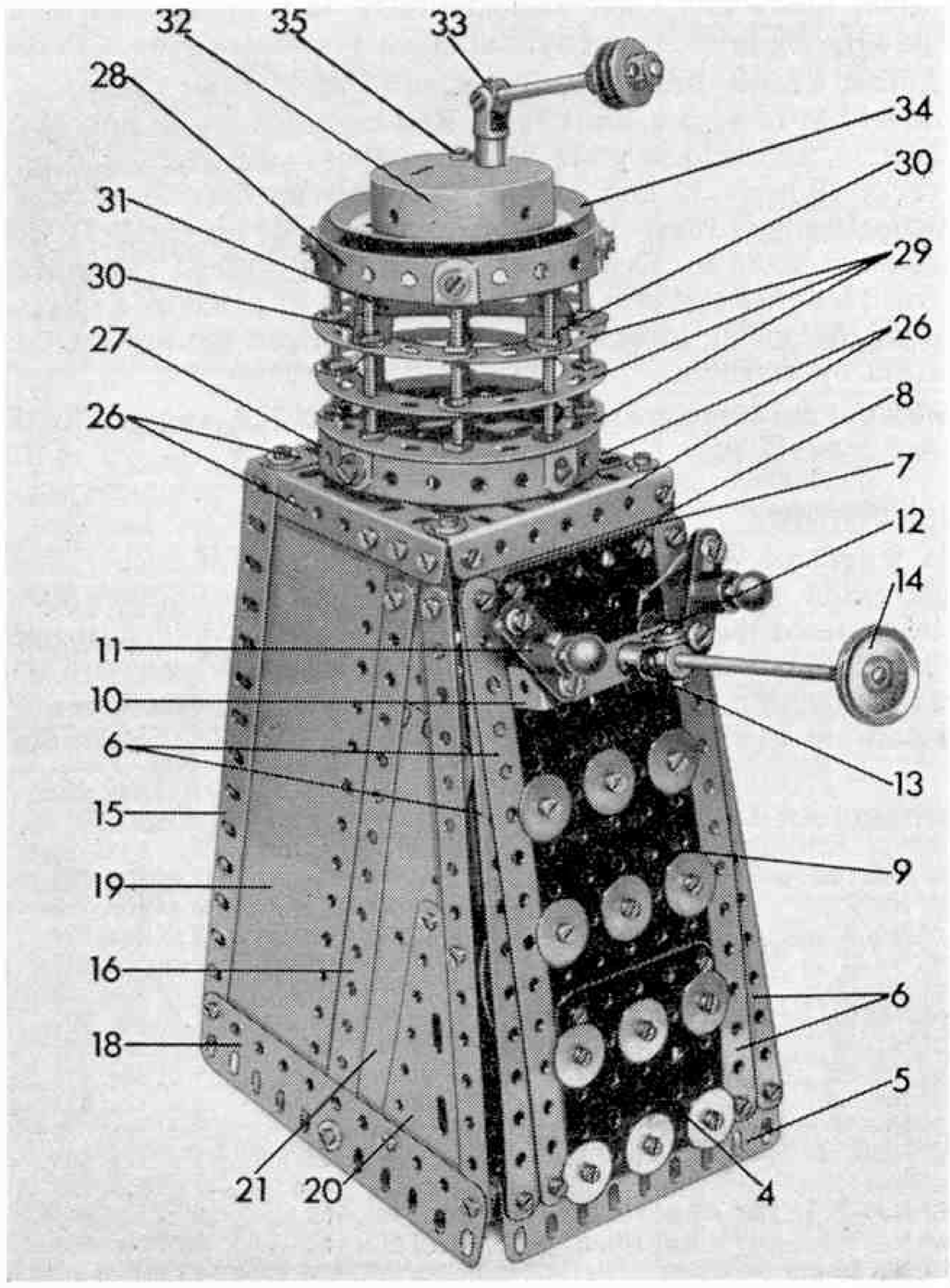
WHILE travelling into the future in his incredible 'time machine', Dr. Who and his three companions encountered the fearsome Daleks! These weird space invaders of the future are, as most of you know, to be seen on the exciting television serial 'Dr. Who'.

However, although the Daleks are in many ways frightening, they are fascinating creatures with strange metallic voices that have the ability to slip along, robot-like, under their own power. In fact, so popular are the Daleks that toy shops throughout the country have been selling thousands of models of these space creatures. Therefore, I thought it would make a popular exercise to build a Dalek in Meccano. The model described in this article is based on a television Dalek, although it is not identical in shape. Motive power is supplied by an Emebo motor and two lamps on the front of the body flash on and off as the model moves.

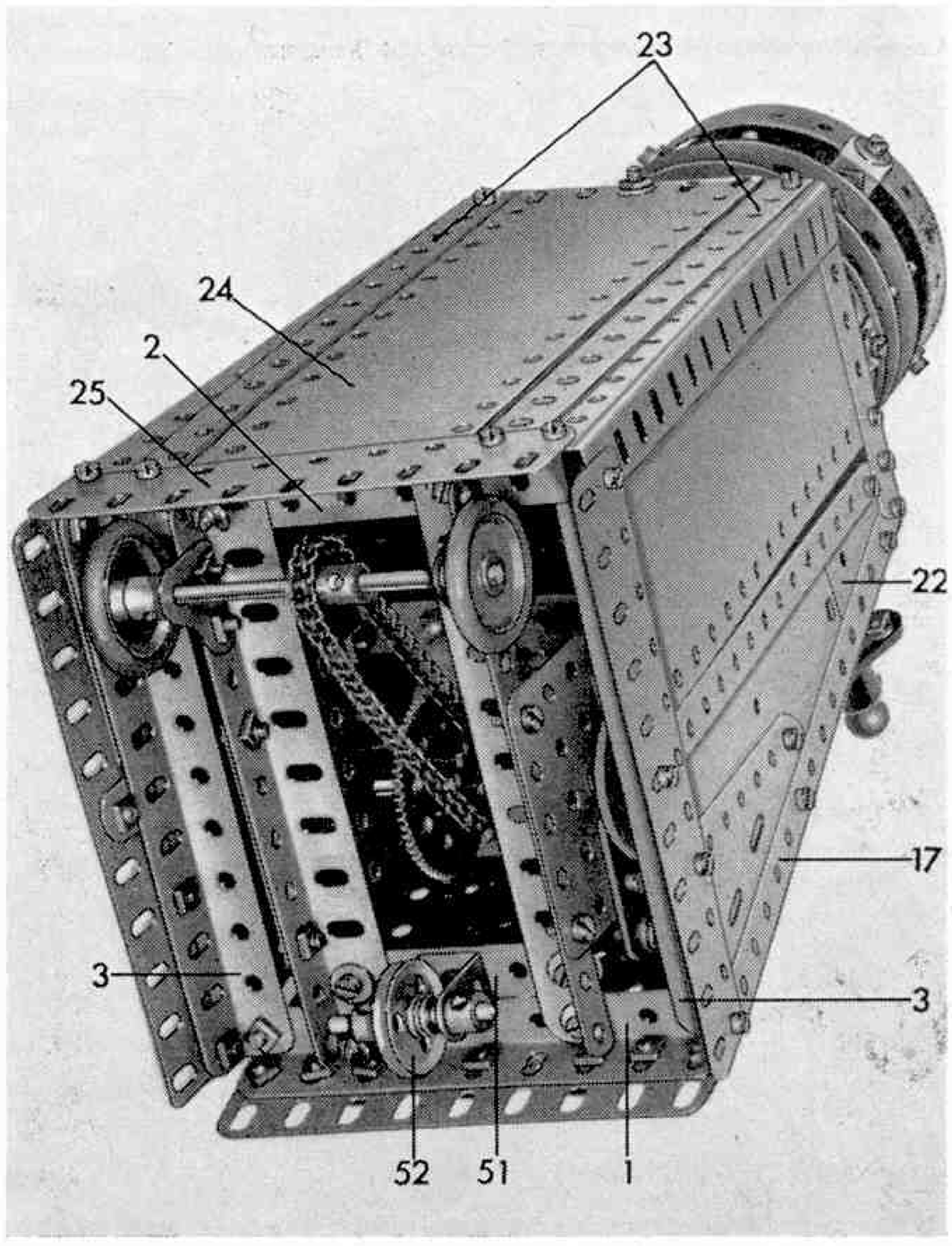
A rectangle is built up from two $4\frac{1}{2}$ in. Angle Girders 1 and 2, and two $5\frac{1}{2}$ in. Angle Girders 3. Bolted to Angle Girder 1 are a $2\frac{1}{2}$ in. $\times 2\frac{1}{2}$ in. Insulating Flat Plate 4 (Elektrikit Part No. 511), a $4\frac{1}{2}$ in. Flat Girder 5 and four $7\frac{1}{2}$ in. Strips 6, the last arranged in two pairs, one each side of the Insulating Plate. At the top, the Strips making up each pair are overlapped, as shown and are bolted, along with a $3\frac{1}{2}$ in. Strip 7, to a Fishplate 8. Plate 4 is extended by a $5\frac{1}{2}$ in. $\times 2\frac{1}{2}$ in. Insulating Flat Plate 9 (Elektrikit Part No. 510) which, in turn, is bolted to Strip 7. Twelve $\frac{3}{4}$ in. Washers are fixed in rows of three to Plates 4 and 9.

Two $\frac{1}{2}$ in. $\times \frac{1}{2}$ in. Double Brackets 10, each carrying a Lamp Holder 11 (Elektrikit Part No. 539) and connected by a $2\frac{1}{2}$ in. Insulating Strip 12 (Elektrikit Part No. 502), are bolted to Plate 9. Half-inch Bolts are used to fix Insulating Strip 12 and the Lamp Holders to the Double Brackets. A Swivel Bearing 13, with a $3\frac{1}{2}$ in. Rod mounted in the spider, is attached to

An intriguing model based on B.B.C. Television's famous "Daleks".



The model viewed from beneath.



Strip 12 by means of a $\frac{1}{2}$ in. Bolt through the centre hole. A 1 in. Pulley 14 is fixed on the end of the $3\frac{1}{2}$ in. Rod. Lamps, of course, are fitted in the Lamp Holders.

Both sides are similarly built. A $7\frac{1}{2}$ in. Angle Girder 15 and two $7\frac{1}{2}$ in. Strips 16 and 17 are bolted, in the positions shown, to Angle Girder 3, at the same time fixing $5\frac{1}{2}$ in. Flat Girder 18 in place. The intervening space is filled in by a $7\frac{1}{2}$ in. Strip Plate 19, a $3\frac{1}{2}$ in. $\times 1\frac{1}{2}$ in. Triangular Flexible Plate 20, a $5\frac{1}{2}$ in. $\times 1\frac{1}{2}$ in. Flexible Plate 21 and a $3\frac{1}{2}$ in. $\times 2$ in. Triangular Flexible Plate 22. A further two $7\frac{1}{2}$ in. Strips 23 and a $7\frac{1}{2}$ in. Strip Plate 24, all overlaid along the bottom by a $3\frac{1}{2}$ in. Flat Girder 25, are used to complete the back.

A square is formed from four $3\frac{1}{2}$ in. Angle Girders 26, and this is fixed to the top of the body, as shown, Fishplates connecting Strips 16 and 17 to the respective Girders.

The Head

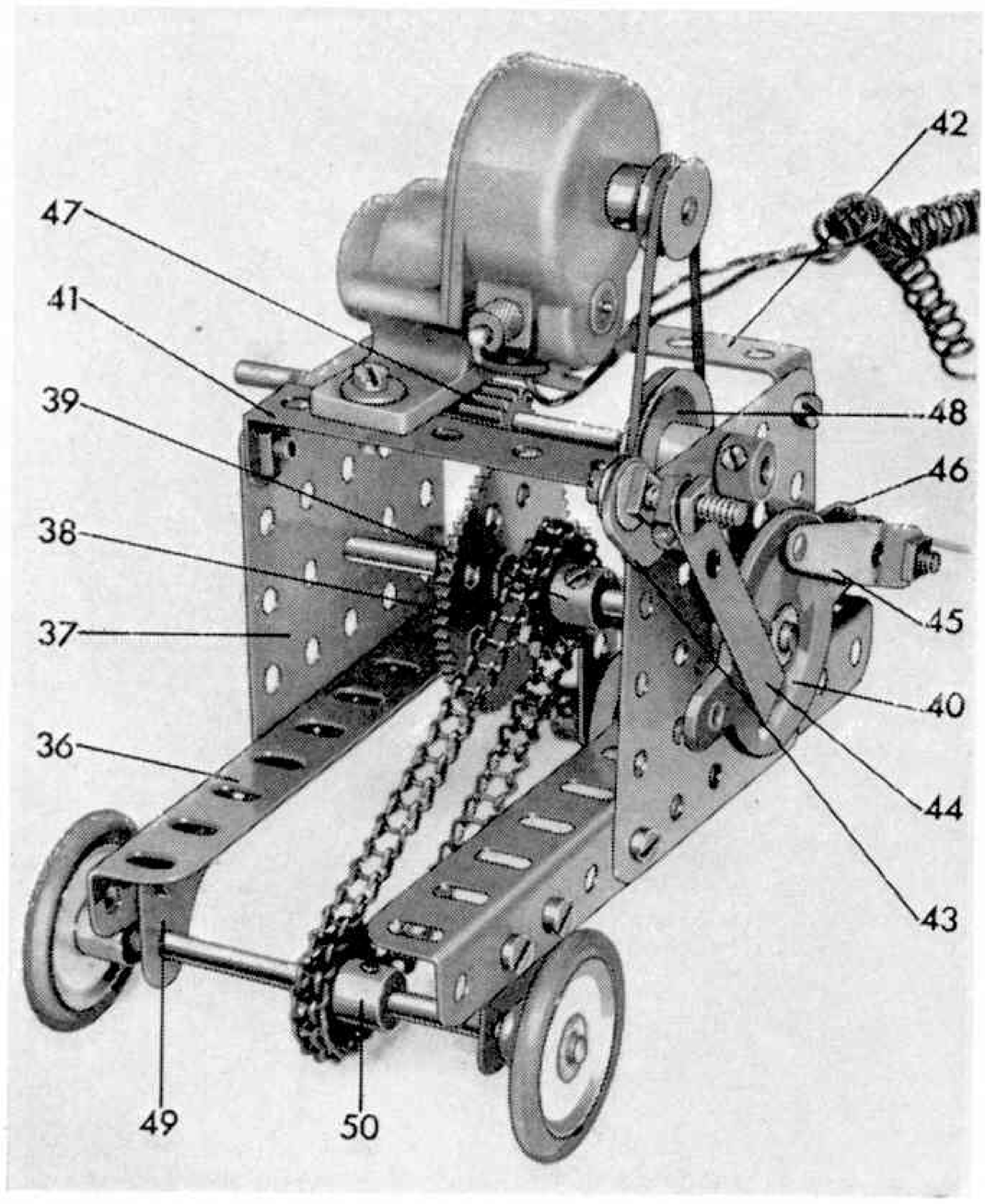
Two circles 27 and 28 are each built up from two $5\frac{1}{2}$ in. Strips to which four Angle Brackets are bolted. Another three circles 29 are then built up from four $2\frac{1}{2}$ in. Stepped Curved Strips, the upper circle being braced by two $2\frac{1}{2}$ in. Strips 30. These Strips are connected by a further two $2\frac{1}{2}$ in. Strips 31 placed one on top of the other. All five circles are connected by eight 2 in. Screwed Rods, but are held apart by nuts on each Rod.

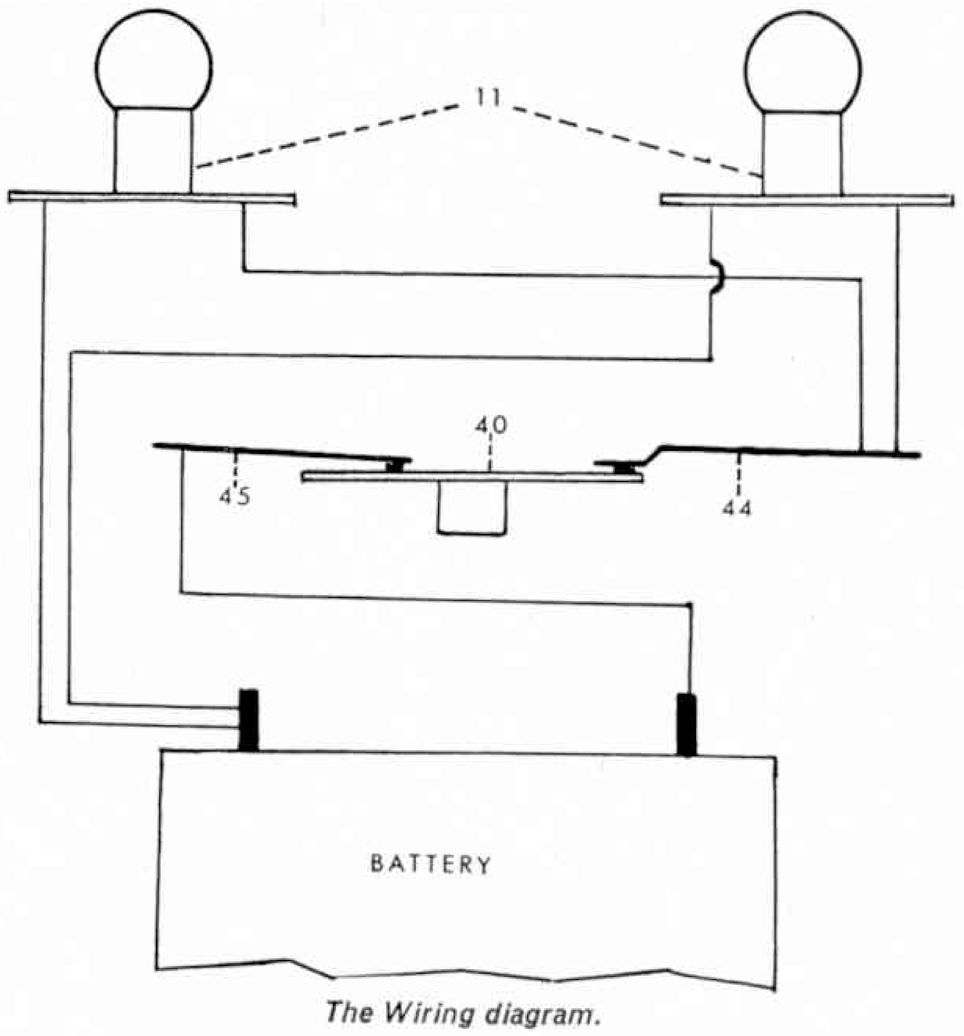
Fixed to the Boiler End 32 by a $\frac{1}{2}$ in. Bolt is a Small Fork Piece that carries a Collar 33 between its arms. A $2\frac{1}{2}$ in. Rod, on which three $\frac{3}{4}$ in. Washers, each spaced from the next by two Washers, are held by Collars, is mounted in this Collar. The Boiler End is placed on a 3 in. Pulley 34 and the two are fixed in place by another 2 in. Screwed Rod 35 held in Strips 31. Angle Brackets are used to secure the completed head to Girders 26.

Gearbox and Motor Drive

Two similar housing sides are constructed from a $5\frac{1}{2}$ in. Angle Girder 36 to which a $2\frac{1}{2}$ in. $\times 2\frac{1}{2}$ in. Flat Plate 37 is bolted. Journalled in the centre hole of the Flat Plates is a $3\frac{1}{2}$ in. Rod that carries a 60-tooth Gear Wheel 38, a $\frac{3}{4}$ in. Sprocket Wheel 39 and a Commutator 40 (Elektrikit Part No. 551). A Collar holds the Rod in place.

A view of the gearbox showing the drive and also the commutator arrangement.





The Wiring diagram.

Fixed between Plates 37 are two $2\frac{1}{2}$ in. $\times \frac{1}{2}$ in. Double Angle Strips 41 and 42, one of the bolts securing Double Angle Strip 41 also holding an Insulating Fishplate 43 (Elektrikit Part No. 513). Held on a $\frac{3}{4}$ in. Bolt, fixed in this Fishplate, is a 2 in. Wiper Arm 44 (Elektrikit Part No. 533), which is in contact with the outside edge of the Commutator. In contact with the continuous conduction part of the Commutator is a $1\frac{1}{2}$ in. Wiper Arm 45 (Elektrikit Part No. 532), mounted on a $\frac{3}{4}$ in. Bolt held in a $1\frac{1}{2}$ in. Insulating Strip 46 which is bolted to one of the Plates 37.

Another $3\frac{1}{2}$ in. Rod, carrying a $\frac{7}{16}$ in. Pinion 47 and a 1 in. fixed Pulley 48 is journalled in Plates 37, then an Emebo Motor is bolted to Double Angle Strips 41 and 42. Pinion 47 is in constant mesh with Gear 38 and Pulley 48 is connected, by a $2\frac{1}{2}$ in. Driving Band, to a $\frac{1}{2}$ in. Pulley on the Motor output shaft.

A 1 in. Corner Bracket 49 is bolted to each Angle Girder 36. Mounted in these is a third $3\frac{1}{2}$ in. Rod carrying a $\frac{3}{4}$ in. Sprocket Wheel 50, and held in place by 1 in. Pulleys with Rubber Ring. Sprocket Wheels 39 and 50 are connected by Sprocket Chain. At the front, Girders 36 are bridged by a $2\frac{1}{2}$ in. Strip 51, to which a 1 in. $\times \frac{1}{2}$ in. Double Bracket is lock-nutted. Mounted in this Double Bracket is a $1\frac{1}{2}$ in. Rod, held in place by Collars, that carries a 1 in. loose Pulley 52, spaced from the lugs of the Bracket by Washers.

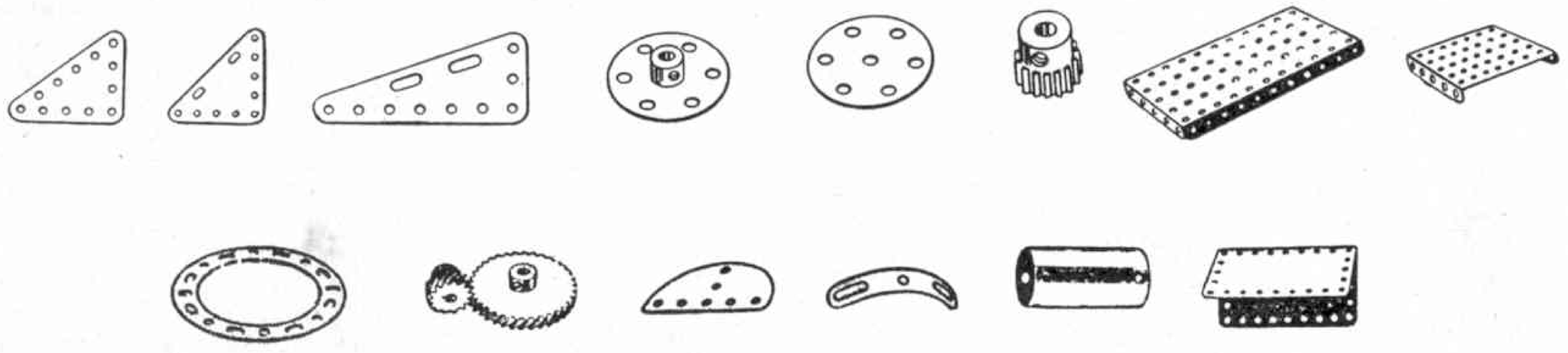
Finally, the completed arrangement is bolted to Angle Girders 1 and 2, as shown.

The Wiring

A length of wire is taken from one terminal of each Lamp Holder and is connected to Wiper Arm 44, then another wire is taken from the other terminal of each Lamp Holder to one terminal of a battery. The last wire connects Wiper Arm 45 to the remaining terminal of the battery. You will find a simple diagram on this page, showing the wiring layout. **Spanner**

Parts required

10 of No. 1b	1 of No. 19b	12 of No. 90a	2 of No. 189
4 of No. 2	4 of No. 22	1 of No. 94	3 of No. 195
1 of No. 3	1 of No. 22a	2 of No. 96a	2 of No. 224
5 of No. 5	1 of No. 23a	2 of No. 103	2 of No. 225
2 of No. 8b	1 of No. 26c	2 of No. 103c	1 of No. 502
4 of No. 9	1 of No. 27d	2 of No. 111	1 of No. 503
2 of No. 9a	157 of No. 37a	4 or No. 111a	1 of No. 510
4 of No. 9b	95 of No. 37b	3 of No. 111c	1 of No. 511
8 of No. 10	37 of No. 38	1 of No. 116a	1 of No. 513
2 of No. 11	15 of No. 38d	2 of No. 133a	1 of No. 532
1 of No. 11a	2 of No. 48a	2 of No. 155	1 of No. 533
10 of No. 12	7 of No. 59	1 of No. 162a	2 of No. 539
4 of No. 16	2 of No. 72	1 of No. 165	2 of No. 540
1 of No. 16a	9 of No. 81	1 of No. 186	1 of No. 551
1 of No. 18a			1 Emebo motor



Dealers who specialise in Meccano spare parts

Listed below are some of the dealers who sell Meccano accessories and spare parts. This is intended to aid enthusiasts—and there are many of them—who constantly require additional spare parts for their Sets. All dealers can, of course, order Meccano spare parts for their customers, but those listed here are among our spare part specialists.

C. G. MARSHALL
Maxwell Road
BEACONSFIELD
Telephone: 1092

BATESON'S SPORTS DEPOT LTD.
58 Abingdon Street
BLACKPOOL
Telephone: 24061

TETT'S THE IRONMONGERS
402 Wimborne Road
Winton, BOURNEMOUTH
Telephone: Winton 309

H. SALANSON & CO. LTD.
83-85 Fairfax Street
BRISTOL 1
Telephone: 2-6185

BARRETT'S LTD.
2 St. George's Street
CANTERBURY
Telephone: 6161

GORDON EASTON & CO.
40 Lowther Street
CARLISLE
Telephone: 22947

R. M. HILL & SONS
36/40 Castle Street
CARLISLE
Telephone 21621 and 21122

W. PAINE & CO. LTD.
168 High Street
CHATHAM, Also at Strood and Grays
Telephone: 45215

DOLL'S HOSPITAL (YOUNGSTERS)
55 Hallgate
DONCASTER
Telephone: 2831

FLETCHERS (Sports) LTD.
20-24 King Street
GLOUCESTER
Telephone: 22974

THE GUILDFORD
DOLL'S HOSPITAL LTD.
13 Swan Lane, GUILDFORD
Telephone: 61331

THE MODEL SHOP
179 Ferensway
HULL
Telephone: 29199

LUCAS'S (Hobbies) LTD.
7 Tarleton Street
LIVERPOOL 1
Telephone: Royal 7562

H. A. BLUNT & SONS LTD.
133 The Broadway, Mill Hill
LONDON N.W.7
Telephone: Mill Hill 2877

JEREMY
16 Princes Arcade, Piccadilly
LONDON, S.W.1
Telephone: Regent 1846

F. T. B. LAWSON LTD.
New George Street
City Centre, PLYMOUTH
Telephone: 65363

LANE'S TOY SHOP
75 High Street
ROCHESTER
Telephone: Chatham 41870

WILTONS SPORTS AND GAMES
Corner Canal and Queen Street
SALISBURY
Telephone: 2984

JOHN W. BAGNALL LTD.
18, Salter Street,
STAFFORD
Telephone: 3420

LESLIE BROWN
Super Toy and Model Store
95 High Street, Stockton-on-Tees
Telephone: 67616

L. A. RICHARDS LTD.
92 The Broadway,
Wimbledon, S.W.19.
Telephone: LIBerty 1155

OVERSEAS DEALERS

AUSTRALIA

Jack Stanbridge's Hobby Shop
54a Canning Highway
Victoria Park, PERTH, W. Aust.
Telephone: 6-1668

NORTH SHORE HOBBY CENTRE
8 Post Office Street
Pymble (SYDNEY) N.S.W.

Walther & Stevenson Pty. Ltd.
395 George Street
SYDNEY
Telephone: 29. 3566

NEW ZEALAND

BUNKERS LTD.
P.O. Box 58
HASTINGS
Telephone: 84-283 (Mail orders welcomed)

simple models for beginners

OVER the past few weeks, I have received a number of letters from readers, pointing out that I have been neglecting the very young builder, who is not able to tackle the more advanced constructions. Therefore, to rectify the situation I have worked out plans for three simple models which, while being very easy to build, also 'work'.

Bacon Slicer

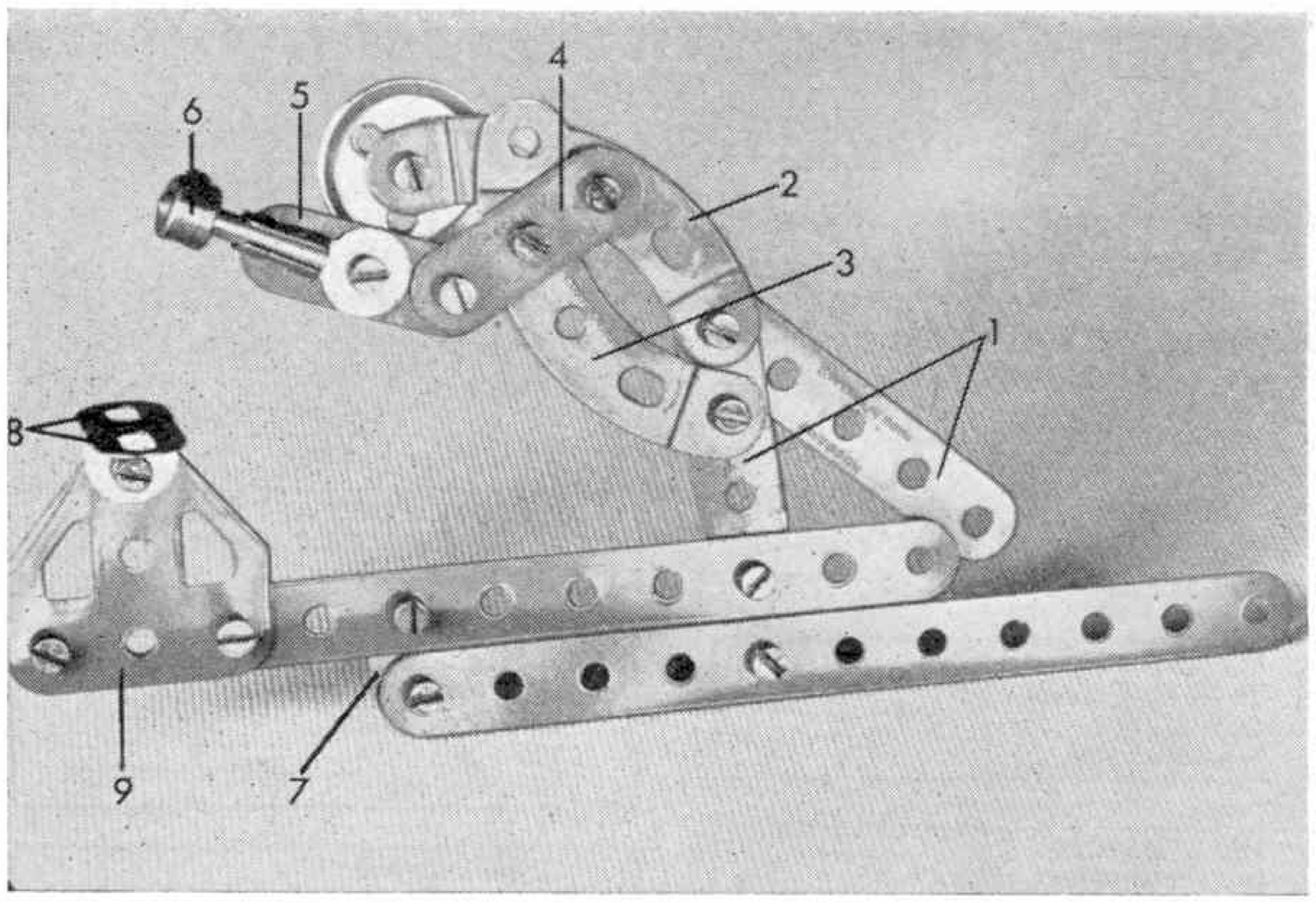
To build the simple model of a bacon slicer, four $2\frac{1}{2}$ in. Strips 1 are bolted, one at each corner, to a $5\frac{1}{2}$ in. $\times 2\frac{1}{2}$ in. Flanged Plate 2, with $5\frac{1}{2}$ in. Strips 3 being used as bracers. Mounted in the Flanged Plate are a $3\frac{1}{2}$ in. Crank Handle, held in place by a Bush Wheel 4 and a $\frac{1}{2}$ in. Fixed Pulley 5, and a $3\frac{1}{2}$ in. Rod secured by a Collar and a $2\frac{1}{2}$ in. Gear 6. This Gear represents the cutting blade.

The moving bacon carriage is built up from two $2\frac{1}{2}$ in. $\times \frac{1}{2}$ in. Double Angle Strips 7, connected by two $2\frac{1}{2}$ in. Strips 8 and 9. The lugs of the Double Angle Strips fit inside the flanges of Plate 2, so it may be necessary to bend the lugs inward, slightly. Double Brackets 10, bolted to Strips 8 and 9, hold the carriage in place, the bolt in Strip 8 also fixing an Angle Bracket 11 to the Strip. Lock-nutted to this Angle Bracket and also to Bush Wheel 4, is a 3 in. Strip 12, bent to shape as required. It is spaced from the Bush Wheel by a Washer.

Lastly, a 1 in. Pulley with boss is mounted on the $3\frac{1}{2}$ in. Rod, and is connected to Pulley 5 by a 6 in. Driving Band.

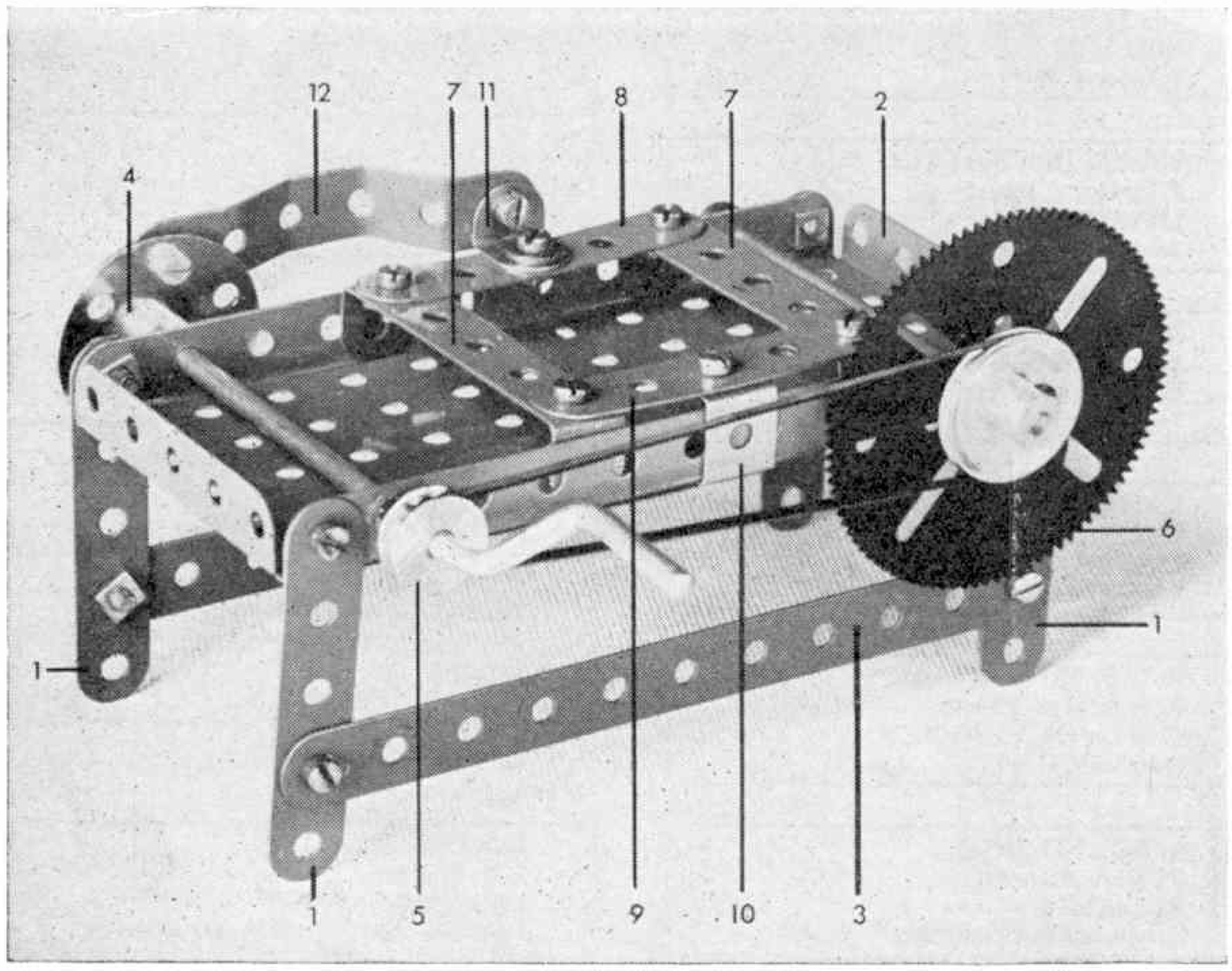
Parts required:

2 of No. 2	1 of No. 19s	15 of No. 37b
1 of No. 4	1 of No. 22	2 of No. 38
6 of No. 5	1 of No. 23a	2 of No. 48a
2 of No. 11	1 of No. 24b	1 of No. 59
1 of No. 12	1 of No. 27c	1 of No. 111c
1 of No. 16	18 of No. 37a	1 of No. 186a



Work the lower $5\frac{1}{2}$ in. Strip in and out, and watch the blacksmith bang away at his anvil

A simple model of a Bacon Slicer, in which the bacon carriage slides backwards and forwards as the cutting blade revolves



Blacksmith

Our second model is based on a very old idea, illustrated in the past by the "pecking hen" toy. However, in place of the hen we have substituted a man and given him a hammer, added an anvil, and have come up with a working blacksmith.

The figure is formed from two $2\frac{1}{2}$ in. Strips 1, to which two $2\frac{1}{2}$ in. Stepped Curved Strips 2 and 3 are bolted. These Curved Strips are joined by a $1\frac{1}{2}$ in. Strip 4 which is extended by another $1\frac{1}{2}$ in. Strip 5 to represent an arm. Bolted through the centre hole of Strip 5 is a Rod and Strip Connector that carries a 1 in. Rod on which a Collar 6 is mounted, to serve as the hammer. The head is a 1 in. Pulley without boss, fixed to the top of Strip 2.

A Fishplate 7 is lock-nutted to two $5\frac{1}{2}$ in. Strips, as shown, then the blacksmith is also lock-nutted in position, by one leg only. Finally, an anvil is built up from two Angle Brackets 8, bolted to a Flat Trunnion 9 which, in turn, is fixed to the upper $5\frac{1}{2}$ in. Strip.

When the lower $5\frac{1}{2}$ in. Strip is worked

backwards and forwards, the blacksmith bangs, heartily, on his anvil.

Parts required:

2 of No. 2	1 of No. 18b	1 of No. 59
2 of No. 5	1 of No. 22a	2 of No. 90a
2 of No. 6a	18 of No. 37a	1 of No. 126a
1 of No. 10	14 of No. 37b	1 of No. 213
2 of No. 12		

Cable Railway

Our third and final model is a simple Cable Railway, similar to those found in winter sports resorts or, in this country, in some of the larger stone quarries.

A base is obtained from two 16½ in. compound strips, each composed of one 12½ in. Strip 1 and one 5½ in. Strip 2, connected together by two 2½ in. × ½ in. Double Angle Strips 3, one at each end. Bolted to each Double Angle Strip is a Flat Trunnion 4 and 5.

To Flat Trunnion 4 is fixed a 7½ in. Strip 6, while a 12½ in. Strip 7 is bolted to Flat Trunnion 5. The tops of Strips 6 and 7 are connected by a length of Cord, care being taken to see that the Cord is as taut as possible. A 1½ in. × ½ in. Double Angle Strip 8 is bolted to Strip 7 through the fourth hole from its lower end. Journalled in the lugs of this Double Angle Strip is a 2½ in. Rod 9, held in place by an eight-hole Bush Wheel and a Spring Clip. A handle is provided by fixing a ⅜ in. Bolt in one hole of the Bush Wheel.

The cable car, itself, is built up from two Trunnions 10, connected by two Fishplates 11. Bolted in position through the apex holes of each Trunnion is a ½ in. × ½ in. Reversed Angle Bracket 12, the lug with the elongated hole being used. A ½ in. loose Pulley 13 is mounted, on a lock-nutted ½ in. Bolt, between the other lugs of the Reversed Angle Brackets 12. A short length of Cord 14 is tied between the two centre holes of Reversed Angle Brackets 12. A long length of Cord is then tied to the middle of this length, is threaded through the second hole from the top of Strip 7 and is tied to Rod 9, thus completing the model.

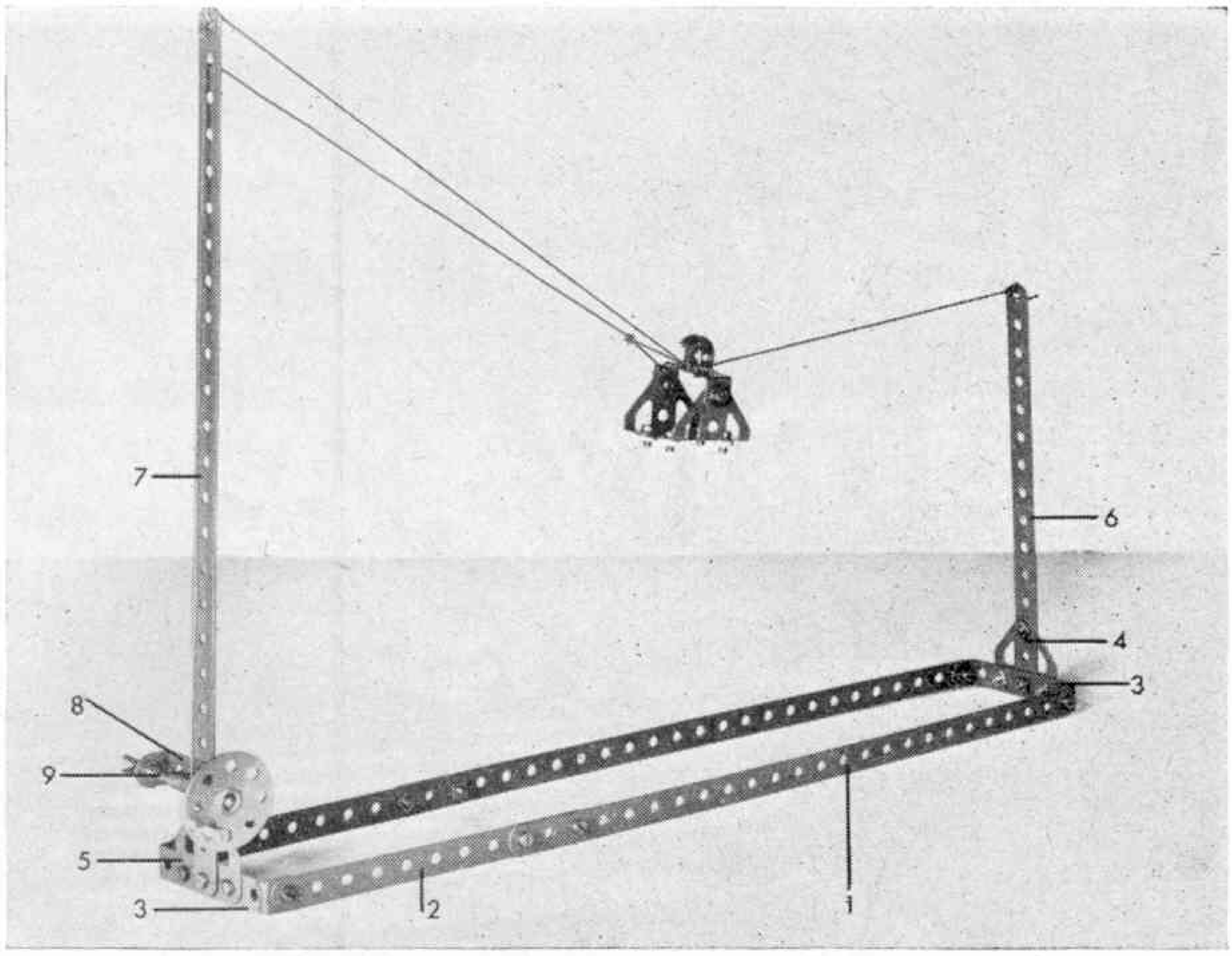
IMPORTANT. — Before finishing I must stress that the building instructions given above are for the original models illustrated in the article, but, if you do not possess all the parts required, they can easily be modified. In the Bacon Slicer, for example, we have used a six-hole Bush Wheel. An eight-hole Wheel would be equally as effective. Also, an ordinary cardboard disc attached to a Pulley or similar part, could take the place of the 2½ in. Gear.

Again, in the Cable Railway, if you do not own the long Strips we have used, you can build them up from smaller Strips, or even scale the whole model down. In short, make any changes that might be necessary to suit the parts you possess.

by Spanner

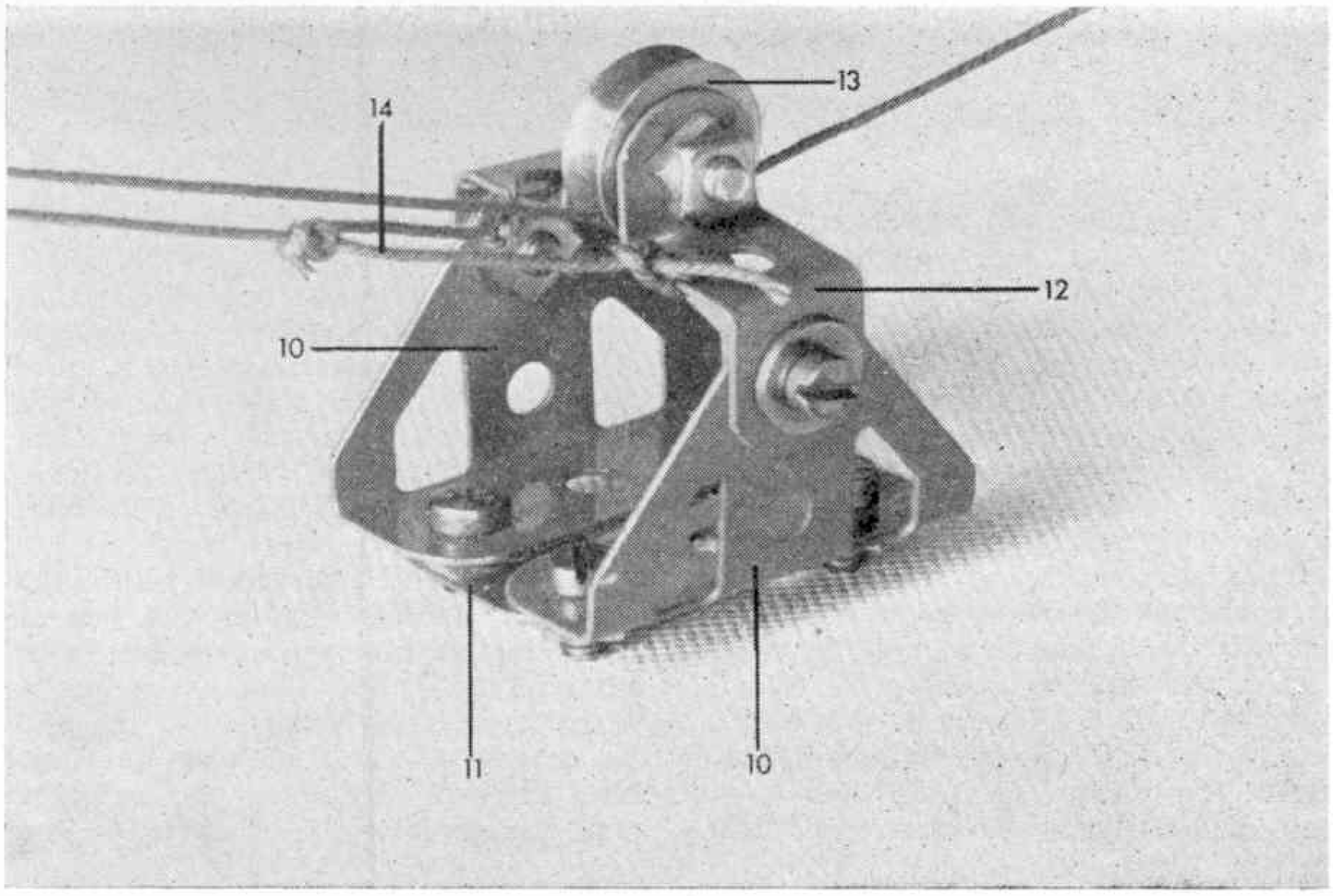
Parts required:

3 of No. 1	1 of No. 35	2 of No. 48a
1 of No. 1b	27 of No. 37a	1 of No. 111a
2 of No. 2	23 of No. 37b	1 of No. 111c
2 of No. 10	2 of No. 38	2 of No. 125
1 of No. 16a	1 of No. 40	2 of No. 126
1 of No. 23	1 of No. 48	2 of No. 126a
1 of No. 24		



A novel working model based on an aerial or cable car railway

This picture shows the cable car, itself, as used in the Cable Railway, described in this article



Answers to Puzzles on Page 11

Quick Quiz Solutions:—

1. Just over 80 m.p.h.
2. John Boyd Dunlop in 1888.
3. 103 miles.
4. Eire. St. Patrick's Day (March 17th).
5. Granny knot.
6. The Goodwin Sands.

If you scored over 35—excellent.
Over 30—Good.
Over 25—Fair.

Tricky Teaser Solution:

Golf would be played with a bat.

Car Quiz No. 6

Simca 1000. Made in France.

O	■	S	P	A	C	E	S	H	I	P	S	■	C
R	A	I	L	■	E	R	E	■	■	E	A	C	H
■	I	D	E	A	■	A	T	T	E	N	D	■	A
T	R	E	N	C	H	■	S	■	■	N	I	P	S
E	■	S	T	E	E	R	■	T	O	Y	S	■	E
S	T	A	Y	S	■	A	■	W	■	■	M	A	R
T	O	D	■	■	S	T	R	I	D	E	■	■	S
■	A	D	D	I	T	I	O	N	A	L	L	Y	■
I	S	L	E	■	■	O	M	■	M	O	O	■	■
■	T	E	A	■	G	N	U	■	A	P	R	I	L
I	S	■	R	O	I	■	L	■	S	E	E	R	■
T	■	H	E	R	■	H	U	L	K	S	■	A	M
■	N	O	S	E	S	■	S	E	■	■	A	T	E
P	O	E	T	■	O	■	■	T	O	■	T	E	N

New Family Saloons

Dinky Toys News by Chris Jelley

'WHAT type of model is most popular?' This is a question which is often asked at Meccano and it is not an easy one to answer. Unfortunately, there is no clear-cut 'top twenty' in the model motor vehicle world for different people have various likes and dislikes. While a tractor or hay-baler might appeal to somebody living in the country, a city-dweller would probably prefer building site machinery. It all depends on environment—where a person lives and what he is used to seeing. In view of this, the obvious question is, 'What type of vehicle is likely to be seen every day by everybody, no matter where they live?' The answer is equally obvious—the ordinary, family saloon car—and this is why it is among the more popular Dinky Toy models.

All the above is, of course, theory, but an analysis of suggestions we have received for new models proves it to be correct and this leads me to the two new models which I promised to describe this month—the Vauxhall Victor 101, No. 151, and the Austin 1800, No. 171—both family saloons.

The first model I shall deal with is the Vauxhall. In my opinion, it is one of the finest medium-priced models ever produced by Dinky Toys. It is not a 'flashy' replica of the real-life car and the quality of the casting is first-class. Also, the skill with which the designers have scaled down the features of the prototype, must be commended. They have faithfully reproduced all noticeable details including the distinctive, convex side windows and supports and concave rear window.

Features include opening bonnet, detailed engine, opening boot, windows and interior fittings, in addition to Prestomatic steering, four-wheel suspension and a brand new type of 'glass' headlamp, trade named 'Hi-Lite'. Also fitted is a black, die-cast base, complete with considerable chassis detail including propeller shaft, fuel line, gearbox and differential casings. Finish is in a high-lustre, carmine-red gloss, with ivory upholstery. Another feature, now being fitted to most new models, is licence plates and you will see from the accompanying illustration that the Vauxhall carries licence number MTB 217C.

Approximate overall dimensions are: Length $4\frac{1}{8}$ in.; width $1\frac{17}{32}$ in.; height $1\frac{5}{16}$ in.; wheelbase $2\frac{11}{32}$ in.

Moving on to the actual car, this is produced by Vauxhall Motors Ltd., at their Luton plant, in Bedfordshire. Power is provided by a four-cylinder, o.h.v. engine of 1,594 c.c. capacity that develops 70 b.h.p. at 4,800 r.p.m., and which gives the car a top speed of 80 m.p.h., allowing it to cruise at 70 m.p.h. over long distances. Transmission to the rear wheels is via a three-speed and reverse gearbox with synchromesh on all forward speeds.

In common with most popular cars of today, the 101 is available in several

Dinky Toys No. 171 Austin 1800, another model of a popular family saloon car

different versions—three saloons and two estate cars. The saloons are standard, Super and de-luxe, the last two titles also applying to the estate cars. There is little between each member of the two types, the main difference being choice of colour scheme, upholstery and front seats—bench or individual. The de-luxe version, in both cases, is fitted with such extras as heater and wheel embellishers.

The 101 is powerful, roomy, well-designed and attractive. In fact, the de-luxe saloon won a silver medal in the coachwork competition organised by the Institute of British Carriage and Automobile Manufacturers at the last Motor Show. This alone proves it to be an excellent vehicle.

The latest B.M.C. model

Turning now to the Austin 1800, we have another appealing miniature that would make a handsome addition to any collection. The casting is extremely sharp and minutely detailed, incorporating all external features of the full-size version. Standard Dinky fittings include Prestomatic steering, four-wheel suspension, windows and interior fittings, plus opening boot and an opening bonnet, covering an authentic representation of B.M.C's new engine. A die-cast metal base and Hi-Lite headlamps are in evidence, as also are number plates. The licence number is INJ 483C. The final touch is given by a superb royal blue flamboyant finish with red interior.

Rough overall dimensions are: length $3\frac{15}{16}$ in.; width $1\frac{9}{16}$ in.; height $1\frac{3}{8}$ in.; wheelbase $2\frac{1}{2}$ in.

The real Austin 1800 is a natural follow-on to the Austin 1100 and it incorporates many of the smaller car's unique features. Most obvious of these are transverse-mounted engine, front-wheel drive and Hydrolastic suspension. In general shape, the car is very reminiscent of the 1100, which is not surprising as it was designed by the same man, Mr. Alec Issigonis, B.M.C's Design Director.

Motive power comes from a four-cylinder o.h.v. engine of 1,798 c.c. capacity, developing 84 b.h.p. at 5,300 r.p.m., which gives the car a maximum speed of 90 m.p.h. and a cruising speed of 80 m.p.h. Average fuel consumption works out at 28-30 m.p.g. Drive is through a four-speed and reverse gearbox with synchromesh on all forward speeds.

Although only a comparatively small vehicle externally, being 13 ft. $8\frac{3}{16}$ in. long by 5 ft. 7 in. wide by 4 ft. $7\frac{1}{2}$ in. high, the 1800 is surprisingly roomy. It will easily accommodate five large adults with more than the usual amount of leg room and plenty of head room. B.M.C. claims that the 'biggest single factor in achieving such roominess is the 'East-West' engine location, which gives 70 per cent of the car's length as passenger and luggage accommodation'. Taking everything into consideration, I would say that the Austin 1800 makes a splendid family car, pleasing in design, more than adequate in accommodation and lively in performance.

Above: The Dinky Vauxhall Victor 101, No. 151, with boot and bonnet open.

Below: A view of the full-size Victor 101 showing its sleek and attractive lines

The real-life Austin 1800. Although small in appearance, it is amazingly roomy inside

BUILD A BEAM ENGINE

ONE of the first steam engines ever built for industrial use was the Beam Engine and although it is a rather ancient-looking machine, I found it enormously fascinating to build as it illustrates, perfectly, the basic workings of this type of engine. Power for the movements is supplied by the small battery-operated Emebo Electric Motor.

Engine Bed

Each side of the bed is built-up from two 17½ in. compound girders 1, made from two 12½ in. Angle Girders, which are joined by two 5½ in. Strips 2. The structure is strengthened by a compound 17½ in. strip 3 and the intervening space is filled by a 12½ in. Strip Plate 4 and a 5½ in. Flexible Plate 5. Two 2½ in. Strips 6 and 7 are bolted to girder 1 and a 12½ in. Braced Girder is connected to these. Note that the lower bolt holding Strip 7 also holds a Fishplate. Two 12½ in. Strips 8 and 9 are bolted to Strip 3, Strip 8 passing behind the above-mentioned Fishplate, and Strip 9 passing behind another Fishplate bolted further along girder 1.

Both sides are joined together, at the base by two 5½ in. by 2½ in. Flanged Plates, and at the top by three 5½ in. Strips 10, 11 and 12. The space between Strips 11 and 12 is filled in by three 5½ in. by 2½ in. and a 5½ in. by 1½ in. Flexible Plate, the latter being nearest to Strip 12.

A further two 12½ in. Strips 13 are bolted between Strips 10 and 11, and a Double Bracket 14 is fixed to each through the hole mid-way between Strips 10 and 11. The fly-wheel will be journalled through these Double Brackets. Two 2 in. by 1½ in. Flexible Plates are fixed to each Strip 13,

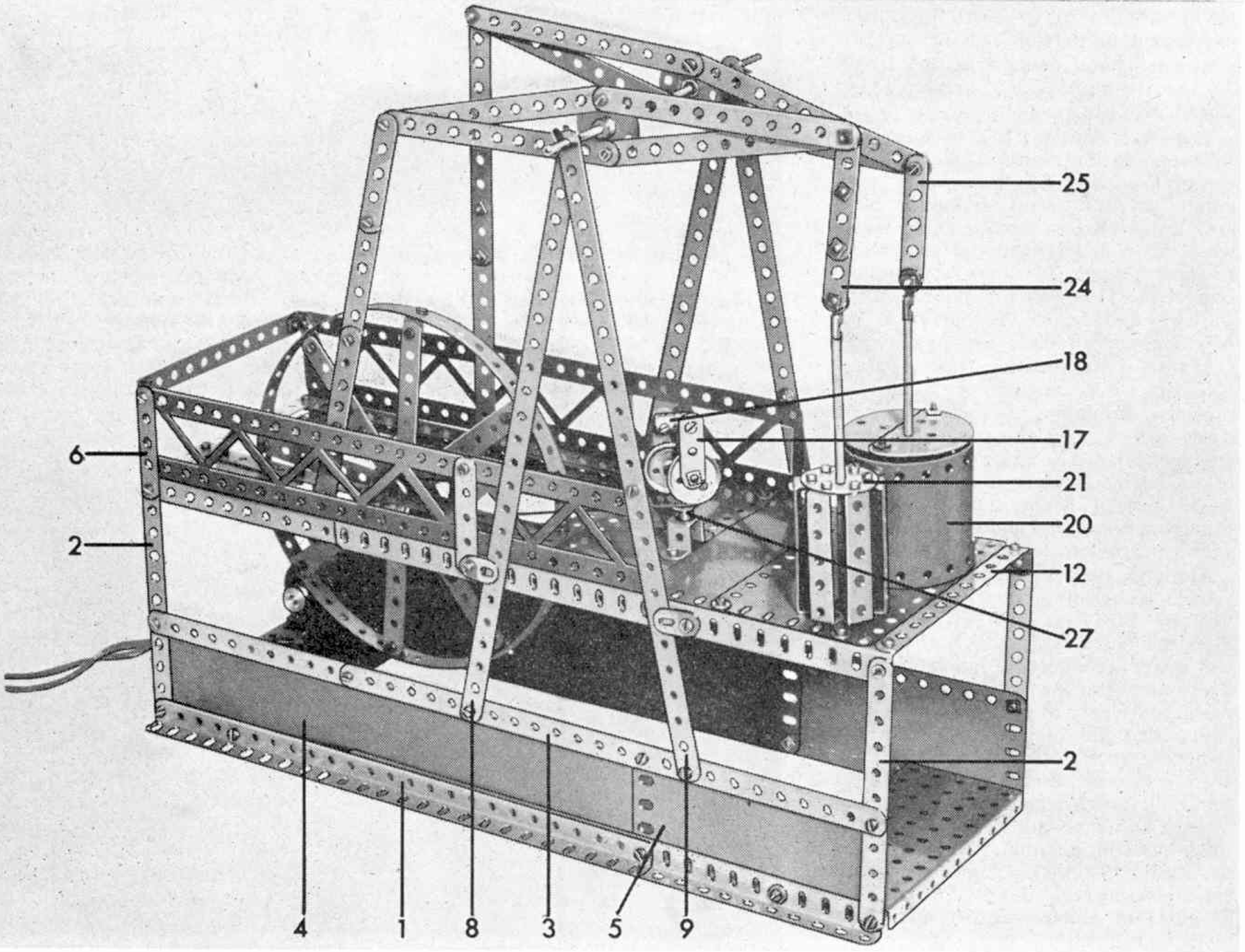
Two 12½ in. Strips, bent to form a circle, serve as the fly-wheel circumference and the spokes are mainly 3½ in. Strips connected between Angle Brackets on the circumference and the hub, which is an eight-hole Bush Wheel. There are eight spokes, but two of them are built-up from two 2½ in. Strips. These are placed opposite each other on the fly-wheel.

The completed fly-wheel, a 1 in. Pulley 15 and a 2 in. Pulley 16, both with bosses, are fixed tightly on a 3½ in. Rod journalled in Double Brackets 14, all three being situated between Strips 13. The Rod is held in position by Cranks on each end making use of two Washers between the Cranks and the Double Brackets.

A governor is formed from two 1 in. Pulleys without boss bolted to 1½ in. Strips 17. These are loosely connected to a Coupling 18 by ½ in. Bolts held by Grub Screws. The Coupling, in turn, is fixed to a 3½ in. Rod which carries a ½ in. Pulley with boss, and which is journalled in a Double Bent Strip 19 and a hole of the 5½ in. Flexible Plate. A collar beneath the Plate holds the Rod in place.

The main cylinder is built-up from

Full building instructions for this model Beam Engine are given above.



two $4\frac{1}{2}$ in. by $2\frac{1}{2}$ in. Flexible Plates 20, attached to two $2\frac{1}{2}$ in. by $\frac{1}{2}$ in. Double Angle Strips. The lower lugs of these Double Angle Strips are used to connect the cylinder to the Plates forming the top of the bed, while two Semi-circular Plates are bolted to the upper lugs. This is done by first fixing a $\frac{3}{8}$ in. Bolt through each lug, so that it is held in place, while bolting the Semi-circular Plate in position.

As can be seen from the illustrations, a smaller cylinder is comprised of six $2\frac{1}{2}$ in. by $\frac{1}{2}$ in. Double Angle Strips fixed to a six-hole Wheel Disc 21 at the top. The completed structure is bolted to the Plates, forming the top of the bed, through the holes in the spare lugs of two of the Double Angle Strips.

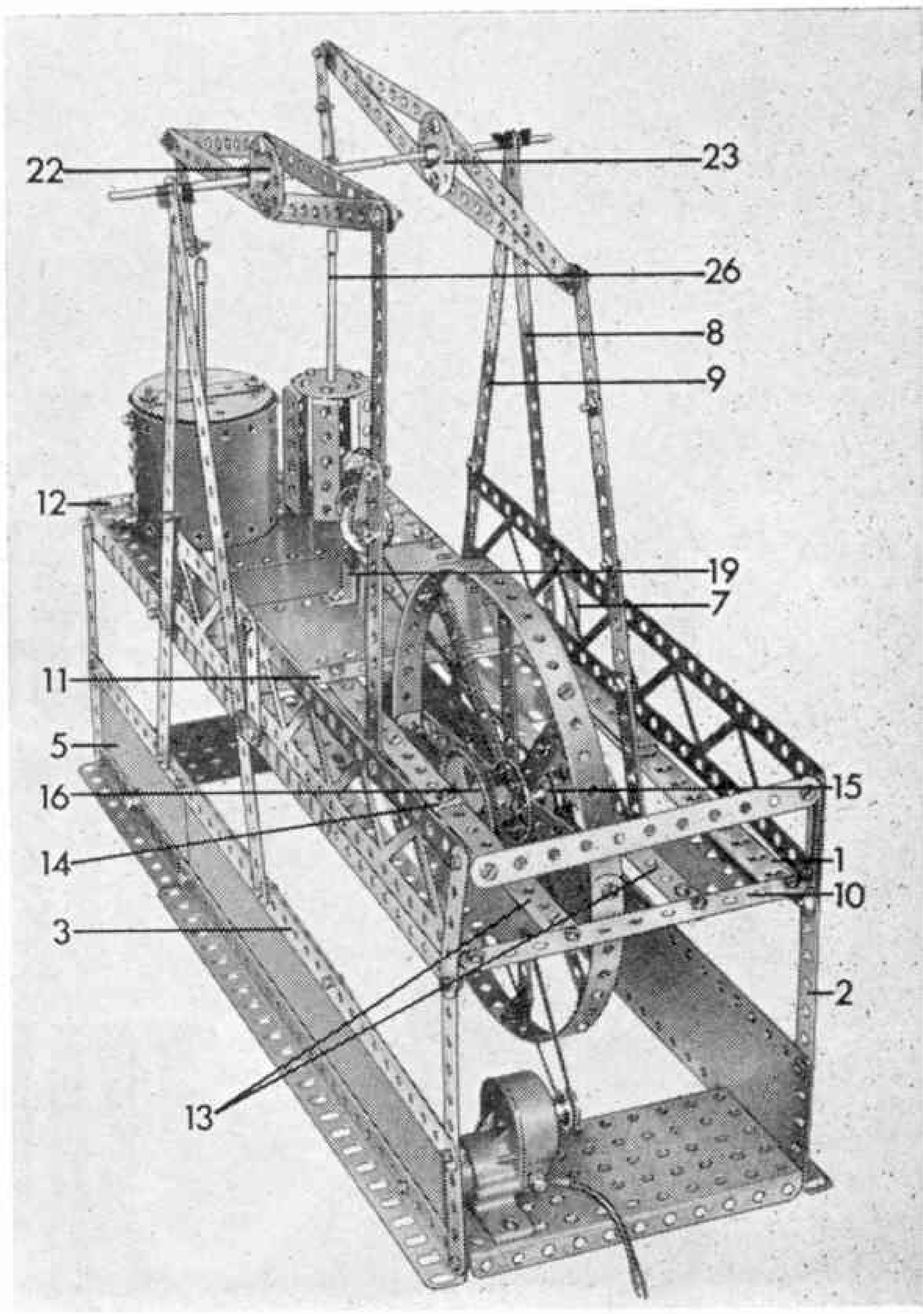
Each engine beam is built up from four $5\frac{1}{2}$ in. Strips arranged in two sharp 'V's with the open ends together and bolted, in one case, to an eight-hole Bush Wheel 22 and, in the other case, to a six-hole Wheel Disc 23, held by Collars. At the fly-wheel end of each beam, the point of the 'V' is lock-nutted to a compound $9\frac{1}{2}$ in. strip. One of these strips is made up from two $2\frac{1}{2}$ in. and two 3 in. Strips, while the other comprises two $5\frac{1}{2}$ in. Strips. At its other end, each compound strip is lock-nutted through the end hole of the Cranks holding the fly-wheel Rod in place. The Rod on which the beams are pivoted is a $7\frac{1}{2}$ in. compound, made up of a 4 in. and a $3\frac{1}{2}$ in. Rod joined by a Rod Connector. The rod is journalled in the end holes of Strips 8 and 9, and is held in place by Spring Clips.

At the cylinder ends of the beams, the 'V' over the smaller cylinder is lock-nutted to a compound $3\frac{1}{2}$ in. strip 24, made from two $2\frac{1}{2}$ in. Strips 25. A $6\frac{1}{2}$ in. Rod 26, free to slide in the centre hole of the Wheel Disc 21 and the corresponding hole in the Plates to which the cylinders are attached, is connected to Strip 24 by a Rod and Strip Connector. A similar thing happens in the case of the large cylinder except that the rod is a 7 in. compound, made from a 5 in. and a 2 in. Rod joined by a Rod Connector.

The Motor is bolted to the Flanged Plate nearest the fly-wheel, as shown and the drive is taken from it to Pulley 16. A further drive is taken from Pulley 15 to the $\frac{1}{2}$ in. Pulley 27 on the governor.

Parts required

12 of No. 1	1 of No. 20a	2 of No. 62
18 of No. 2	1 of No. 22	1 of No. 63
6 of No. 3	2 of No. 22a	2 of No. 99
2 of No. 4	1 of No. 23a	2 of No. 111a
13 of Bo. 5	2 of No. 24	6 of No. 111c
2 of No. 6a	1 of No. 24a	2 of No. 186b
8 of No. 8	1 of No. 24c	4 of No. 188
4 of No. 10	4 of No. 35	1 of No. 189
2 of No. 11	144 of No. 37a	2 of No. 191
10 of No. 12	127 of No. 37b	4 of No. 192
1 of No. 14	22 of No. 38	2 of No. 197
1 of No. 15	1 of No. 45	2 of No. 212
1 of No. 15b	8 of No. 48a	2 of No. 213
3 of No. 16	2 of No. 52	2 of No. 214
1 of No. 17	3 of No. 59	1 Emebo Motor



The Beam Engine, showing the drive from the Emebo Motor to the fly-wheel.

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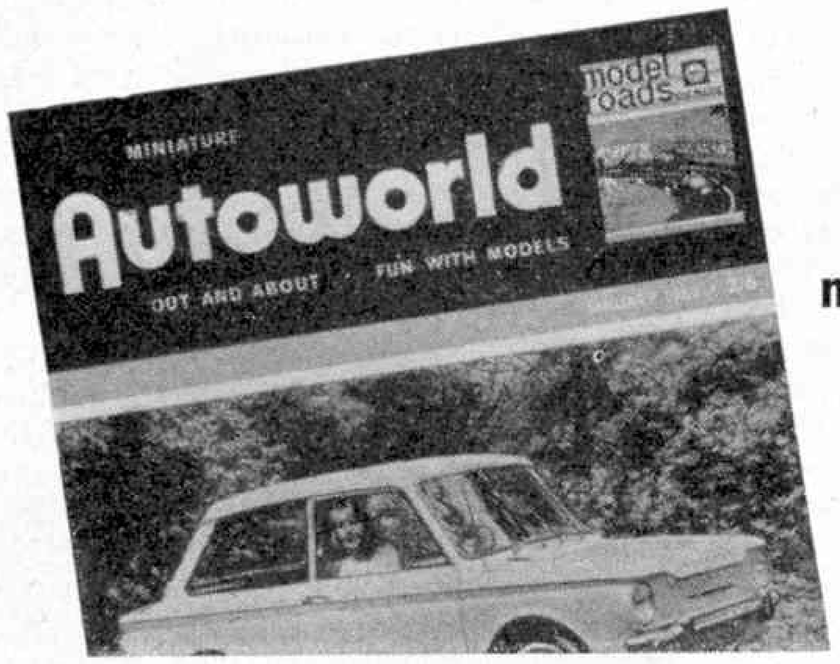

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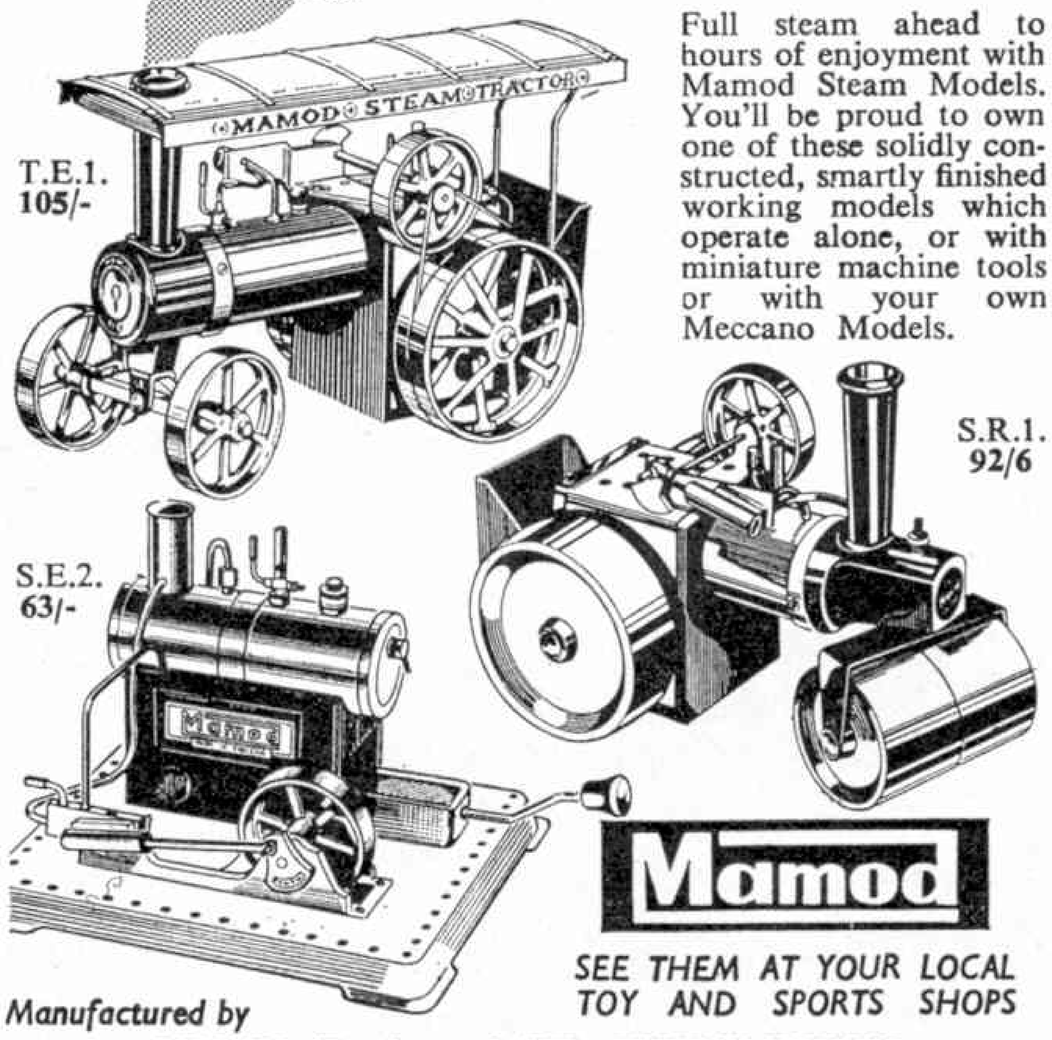

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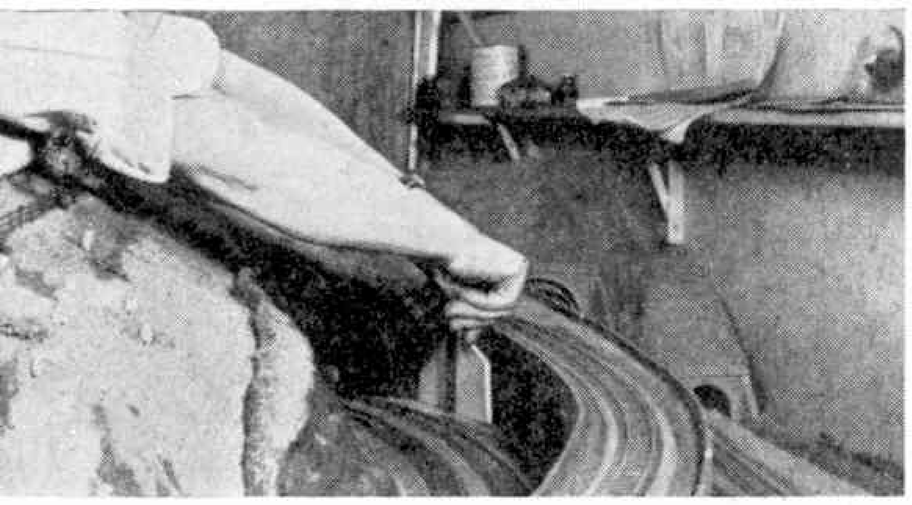
BUILD YOUR OWN TUNNELS

DO you suffer from a cramped model railway layout? If so, you can overcome the problem by dividing the layout into two or more completely different scenes, each connected to the other by a tunnel. In this way it is possible to create the illusion that the layout is quite large, with two of three stations set in a very small area.

The tunnels can, in imagination, represent long sections of railway line between stations and although this may appear to be cheating, it must be remembered that a mile, reduced to 4 mm. or Hornby-Dublo scale, would occupy approximately seventy-six feet, an obviously impossible distance on all but the largest layouts. It is therefore necessary, for the sake of realism, to create an illusion of distance where stations are, in reality, placed only a few feet apart.

Unlike normal scenery, tunnels require a fair amount of preparation since a path has to be left to allow a train to pass through. Also, the tunnel must be constructed so as to avoid any damage to the track and supports have to be arranged accordingly. The tunnel mouth itself can either be hand built or bought commercially, depending on the location of the tunnel mouth with reference to the surrounding countryside.

Plywood, which will later be coated with plaster, is used to fill a gap



Over-the-counter tunnels

The most pleasing tunnel mouths are undoubtedly those produced by Merit. They are moulded in plastic to represent old stone and have a retaining wall on both sides. The plastic is ready-coloured in grey, which can be improved upon with a coat of matt dark grey, mixed in with patches of lighter grey. Specks of green in the cracks between stones is also an effective addition, but must not be overdone. If necessary, the tunnel mouth can be modified by removing the two retaining walls with a sharp modelling knife. Examples of both single and double track widths are shown in the photographs.

The enthusiasts who are prepared to pay a little extra, can buy a really superb tunnel mouth from the range of stone structures produced by A.C.E.M. and marketed by Edward Exley. The only noticeable disadvantage with these items is that they are produced from plaster which, if not handled carefully, is easily broken. They do not lend themselves to modifications and should only be used in their original form. They are also supplied ready painted in the appropriate colours and, in my opinion, little improvement can be made on the original colour scheme.

The third and last range of tunnel mouths available commercially are produced by A. W. Hambling, under the trade name of 'Bilteezi'. These are produced in cardboard in cutout sheet form and are glued together with a white adhesive such as 'Bondfast'. The finished result depends a lot on the builder's skill.

Where simple tunnels are concerned—that is where no mountains or other scenery is involved—the tunnel itself will be hidden under other parts of the railway system lying above it, as shown in one of our photographs. The only work involved in this form of tunnel is the positioning of the tunnel mouth and the building of appropriate scenery such as embankments or cuttings.

Scenery such as this rarely requires additional supports and, as shown above, ordinary wire mesh is sufficiently strong to be draped on either side of the track approaching the tunnel to represent a steep cutting. Undulations can be pressed into the wire mesh and any surplus trimmed off with a pair of shears.

Build-it-yourself tunnel

If none of the over-the-counter tunnel mouths are suitable for the location, one must be hand-built from materials readily available at most model shops. I have found balsa wood, straw board, thick

cardboard and styrene sheet all very serviceable and, with the exception of styrene sheet, all can be located with a mixture of plaster and sawdust. The plaster can then be shaped to represent stone blocks.

Where more complicated tunnels are involved, such as those requiring mountains or hills of any size to be built above them, a separate technique is desirable and it might be as well to quickly describe the methods involved in the construction of hills and embankments. In major scenery of this kind, the use of papier-maché as a foundation material for the 'earth' proper has a lot to recommend it, since it does not crack or warp.

It can be made in two ways, either by tearing newspapers into strips and boiling in a pan of water together with a quantity of plaster and glue, or by laying strips of newspaper on the wire mesh base with alternate coats of diluted Polycell and newspaper. This material, which takes up to 48 hours to dry, gives a resilient but tough surface for a tunnel. It also requires less support than other, alternative, methods.

To begin construction of the type of tunnel under consideration, it is first of all desirable to protect the track from droppings of glue by making a semi-circle of card over the track, which can if you wish, be left permanently in position. The supports for the tunnel must next be arranged by nailing any odd scraps of wood, cut to odd lengths, to the baseboard. An alternative to this is to fix boards, forming the profile of the finished scenery at 8 inch intervals along the baseboard. If this is done, it must be remembered to cut a hole equal in size to the semi-circular roll of cardboard over the track.

Wire mesh should then be pinned over the formation of supports or profile boards, taking special care that the wire mesh comes into close contact with the tunnel mouth itself, which should be the last item placed in position. The Merit tunnel mouths have included, on their reverse side, a semi-circular groove for the protective roll of cardboard over the track and, if you wish, you may glue the two together.

Once the wire mesh has been erected, the ground surface of papier-maché can be prepared using either of the methods outlined above. I would suggest that three or four coats be applied on to the wire mesh to reduce the possibility of any cracks appearing and it would be as well to allow each coat to dry before another is applied.

Whilst on the subject of papier-maché, you may find it useful to build up small embankments using a derivative of the papier-maché method, which is both cheap and easy to make. This consists of newspaper crumpled until it is quite firm and built up to the approximate size of the embankment. It should then be held in position while strips of slightly stronger paper are glued round it.

This is shown in our second photograph on the right, where you can see the tunnel mouth and an embankment formed from pieces of crumpled newspaper.

Working with Polystyrene

Mountains, especially those intended for model railways of a continental or American type, have hitherto been very difficult to model effectively. Since the introduction of expanded polystyrene, however, which is obtainable in blocks and sheets at a quite modest cost, all manner of scenic wonders have become possible. The photographs on the left show part of such a mountain, which was literally hacked out of solid lumps of white expanded polystyrene. The pieces of polystyrene must be joined together with a glue of the 'Black Bostik' type, available from any ironmongers.

When the appearance of the mountain meets with your satisfaction, its surface can be coated with a mixture of plaster and sawdust. When dry, it can then be painted in various shades of brown and grey according to the type of rock.

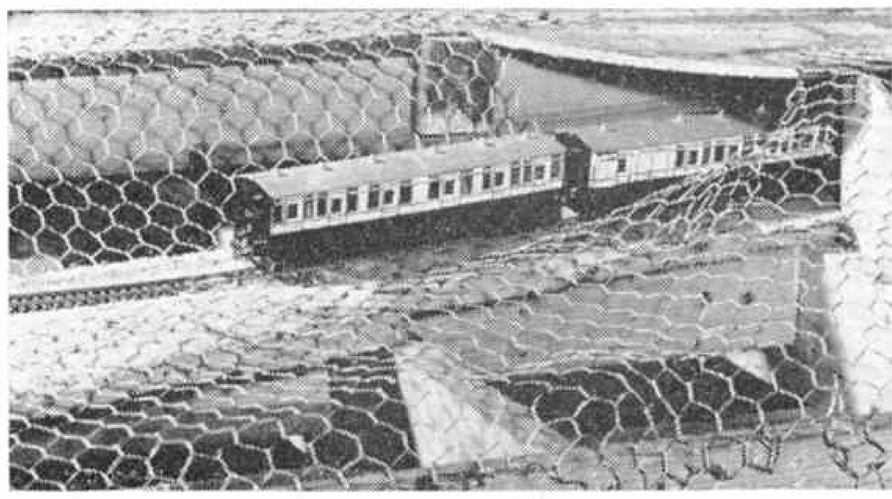
The final surface of papier-maché hills is also made from a mixture of plaster and sawdust, with an occasional pebble placed to represent a boulder. Rock formation can be formed on the sides of steep embankments or hills by covering the surface with plaster and 'carving' with a penknife.

An easier alternative to this is to lay cork bark along the sides, filling in any cracks with plaster and painting with a number of different browns and greys with specks of green on ledges to represent moss or grass. The papier-maché should cover any cracks between the tunnel mouth and the surrounding scenery and the final coat of plaster should cover any remaining gaps between the papier-maché and the tunnel mouth.

On the far left is a completed section of scenery with the tunnel firmly attached to the scenery. The remaining retaining wall would be fixed in place by first bending it slightly inward towards the track and then pinning pieces of spare wire mesh in the gaps at the base and top of the wall. The wire mesh would then have three or four coats of papier-maché applied to it, which when dry would be coated with a mixture of plaster, sand and sawdust. According to the final texture of the scenery, extra sawdust could then be sprinkled on to a coating of glue when the plaster is dry and the whole surface either sprayed or painted.

by Linesman

Polystyrene is cut to shape with a knife or other sharp instrument for forming into tunnels as shown in the illustration below



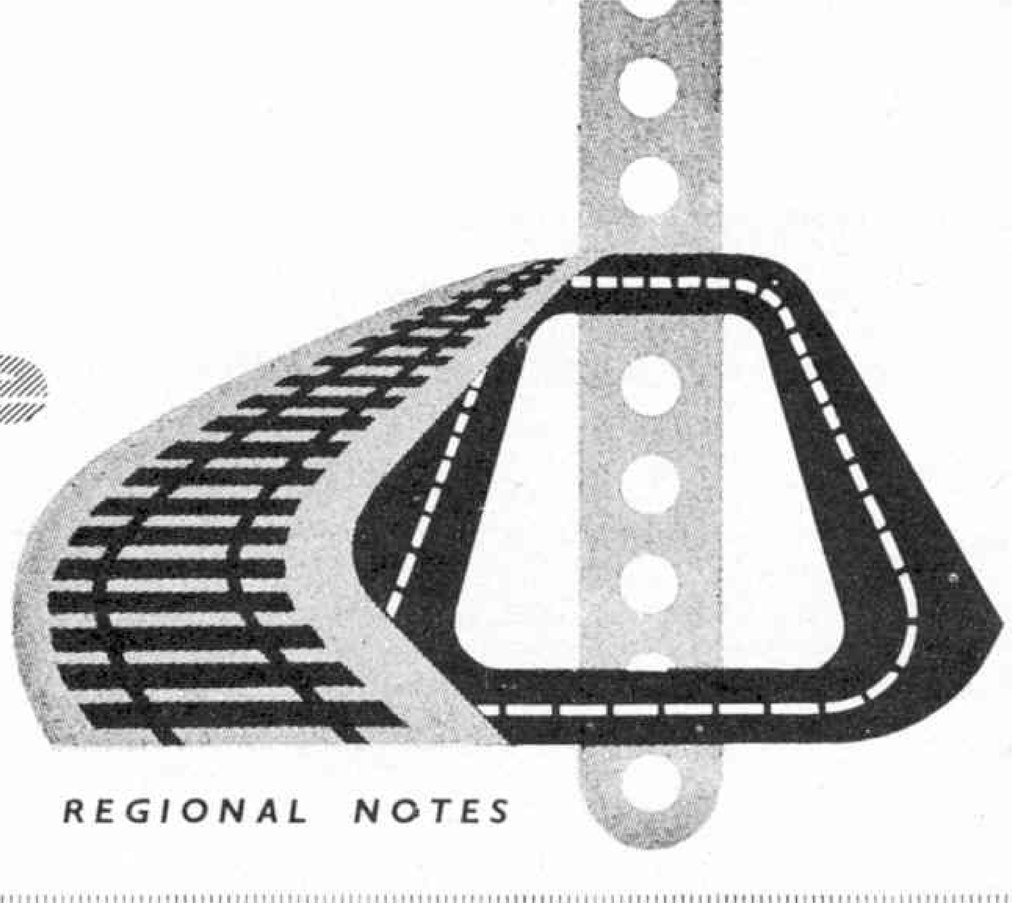
Wire mesh forms the basic shape of tunnel entrance. Papier-maché completes the job ready for painting and decoration

To disguise the ending of the track, a tunnel entrance can be positioned against a base board

The covering of papier-maché is applied in alternate coats of old newspapers and Polycell. Five coats are sufficient

Finally, plaster or Polyfilla can be used to give a rough, rock-like surface ready for painting

Around the SOCIETIES



REGIONAL NOTES

Merseyside M.R.S.

THIS SOCIETY is holding a large model railway exhibition which will take place in the Bluecoat Chambers, School Lane, Liverpool 1, from Wednesday, April 21, to Saturday, April 24. The exhibition will contain approximately thirty stands, ten of which will be working layouts. Among these are the five layouts owned by the society—the American HO—the long end-to-end 0 Gauge layout, with its vertical lift storage sidings—the large 00 layout capable of running six trains simultaneously—the EM layout, which will this year feature a model of the Seacombe branch—and the Society 9 mm. narrow gauge layout—believed to be the most comprehensive of its kind owned by a society.

The 'Electronic Brain' layout, the 'Ortogo Railway' will also be on view, considerably enlarged since it was last exhibited. A small TT layout will also be present for enthusiasts of that gauge. Among the many other models and exhibits in the exhibition, is a tram layout, and also layouts and stands from a large number of Preservation Societies, visiting railway and model railway clubs. Admission to the exhibition is adults 2s. and children 1s. Advance tickets are obtainable from the Exhibition Manager, Mr. M. Rickett, of 69 Gilroy Road, Liverpool 6.

Enquiries regarding membership should be addressed to the Membership Secretary, Mr. E. R. Foulkes, of 99 Blythswood Street, Liverpool 17.

The Southern Society

THIS SOCIETY was formed to promote and exchange ideas and information about the Southern Railway, British Railways (Southern Region), the pre-grouping companies that were the constituents of the S.R., and also the independent companies with which it was associated. The activities of the society are designed to cater for the interests of both model and model railway enthusiasts and meetings are held every Monday. On the first Monday of each month meetings take place at the Ambulance Room at Victoria Station (2nd floor opposite platform 2), and commence at 7 p.m., consisting mainly of talks of Southern interest.

Recent speakers have included the Curator of Clapham Museum, Assistant Station Master at Victoria and John Charman, well-known for his model railway, 'The Charman Branch'. The meetings on other Mondays of the month are held at the society's clubroom on Platform 4 at Streatham Common Station from 6.30 p.m. Activities include the construction of an 00 gauge model railway and the presentation of members' photographs and transparencies.

Enquiries regarding membership should be sent to the Secretary, Mr. R. Merry-Price, of 10 Girdwood Road, Southfields, S.W.18.

The Model Railway Club

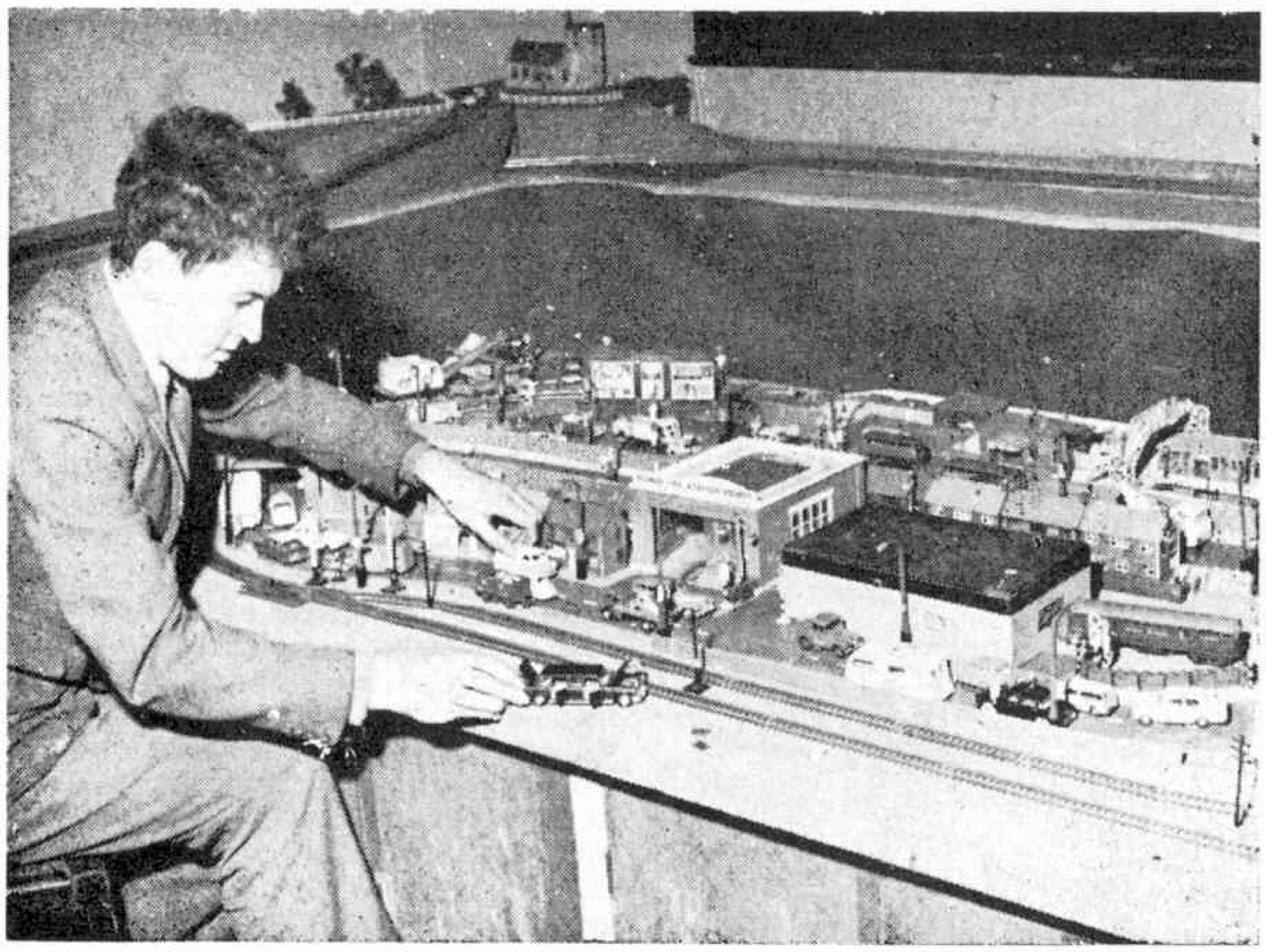
THE CLUB fixtures for April, 1965, are as follows: April 1, Track Night (London, North Eastern Group); April 8, Track Night (Southern Group); April 15, Setting up begins; April 20-24, Exhibition at Central Hall; and April 29th, Clearing up Night. The above meetings take place at the Club Headquarters (apart from the exhibition), Keen House, Calshot Street, King's Cross, London, N.1. Please address all enquiries to the Hon. Secretary, J. E. Geach, Keen House, Calshot Street, London, N.1.

North End (Portsmouth) M.C., H.R.C.

THE OPENING of the club's recent exhibition was not accompanied by an opening ceremony, although a presentation did take place on the opening night.

The exhibition itself was a great success, and was well attended by the public. It featured Mr. Foord, who was engaged in making Meccano models and Mr. Enfield, who operated both the railway

John Kinchen of the North End (Portsmouth) H.R.C. is seen here laying out one of the displays in the club's recent exhibition.



and the motor car track. £30 worth of Dinky Toys was exhibited by Mr. Kinchen who, apparently, just missed the purchase of a 'Triumph Dolimite' which, as most collectors will know, is very rare.

The club still needs many more members and all those enthusiasts who are interested in joining should contact Mr. J. R. Kinchen, of 79 Fortunes Way, Bedhampton, Havant, Hants., enclosing a S.A.E. for reply.

Luton and Dist. M.R.C.

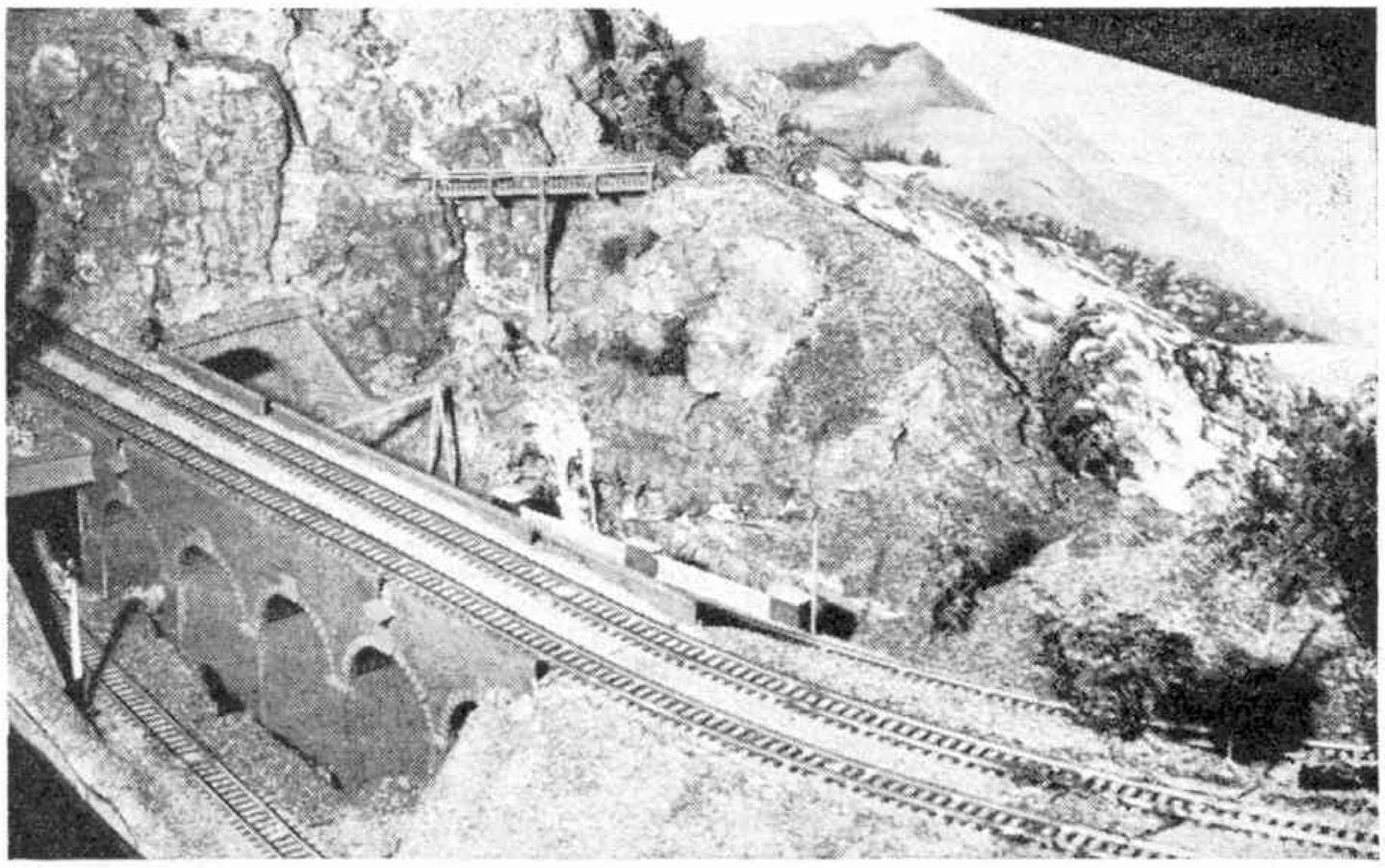
THIS CLUB is organising a Model Railway Exhibition, which will include models from 'N' to 3½ inch gauge, and also working layouts up to '00' gauge. The local railway enthusiasts' club, the South Bedfordshire Locomotive Club, is to exhibit as also are five other rail or preservation societies. The show will take place at St. Mary's Hall, Church Street, Luton, Beds., and will remain open from 11 a.m. to 7 p.m. and admission is by programme 1s. 6d. (juniors 1s.). Further details and a programme, including directions to the hall for those resident out of Luton, are available in advance from the Hon. Sec., Mr. B. C. Lockey, of 107 Carlton Crescent, Luton, Beds. (S.A.E. please).

Middleton Railway Trust

STEAM IS in use again on the 1758 Middleton Railway. The railway's ex-Darlington Works Sentinel No. 54 has temporarily replaced the vintage Hunslet diesel 'John Alcock', which is having a new engine fitted.

Owing to the much greater time needed to operate the Sentinel, a reduced goods service is being worked on the line. Traffic has reached record proportions and every available inch of siding is in use for storing wagon loads of fabricated steel.

The Middleton Railway Trust is acutely short of operating staff, and is appealing for help from anyone willing to give up a few hours each month to keep the world's oldest railway running. Offers of help will be gratefully received by the Operating Superintendent, Mr. N. Fearnley, of 7 Crawshaw Road, Stanningley, Pudsey (Tel. 3938).

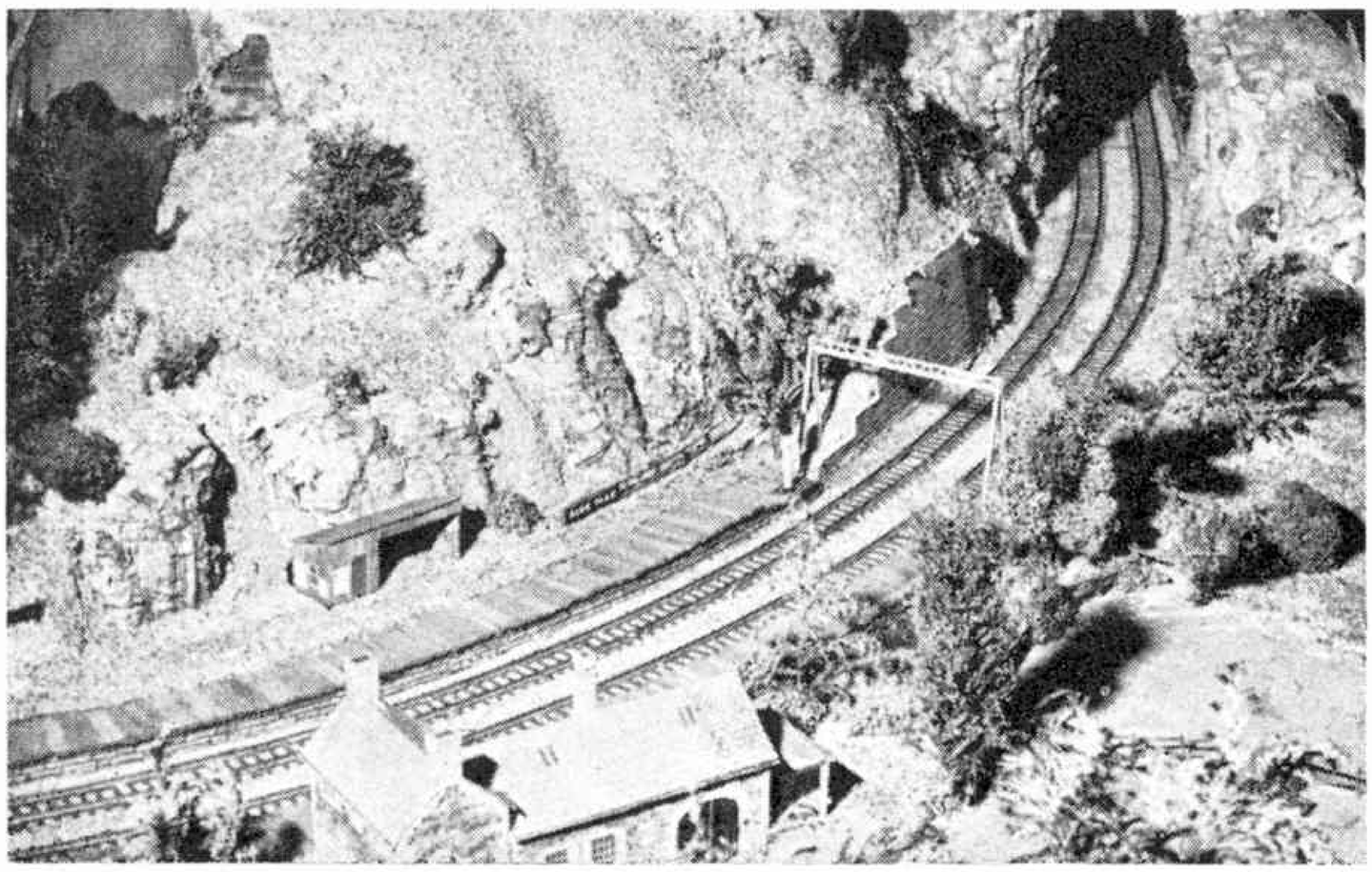


The effective scenery on the Macclesfield Model Railway is achieved through the judicious use of cork bark, plaster and sawdust. Notice how well the viaduct, tunnel and waterfall blend in with each other.

Chester M.R.C.

THE CHESTER Model Railway Club will be holding an exhibition in their clubrooms on Northgate Station from Saturday, May 15, to Saturday, May 22. Among the exhibits is the 00 gauge layout with its 700 feet of track, the 0 gauge layout, and also live steam train rides for children. Many other exhibits and static models will be on show, and there will be a trade stand. The times of opening will be Saturdays 10 a.m. to 8 p.m., and weekdays 6.30 p.m. to 8.30 p.m. The admission charges will be adults 1s., and children 6d.

A scene on the Macclesfield Model Railway Group layout exhibited in the Manchester Model Railway Society Exhibition, featured in last month's 'Around the Societies'.



East Pennines Assoc. of Railway Modellers

THIS RECENTLY founded association, formerly known as the Yorkshire Association of Railway Modellers, has changed its name to that of the East Pennines Association of Railway Modellers. The objects of the association remain substantially unaltered and are—to encourage and co-ordinate inter-club visits and activities—to facilitate mutual assistance in the promoting of exhibitions, conferences and other enterprises by individual clubs—to assist in forming new clubs, and to publish, from time to time, a programme of planned activities, by the association and by member clubs.

Membership is divided into two classes, the first is available to any non-professional organisation catering for the interests of railway modellers and the second is available to any person who, for geographical or other reasons is unable to join a local branch. Any person living in the area covered by the association, who is not able to join a local club, is urged to contact the secretary, Mr. A. Bradbury, of 30 Moor Lane South, Ravenfield, Rotherham, Yorkshire.

Northolt M.R.C.

CONSTRUCTION of the new terminus on the club's 00 Two-Rail layout is now proceeding apace and will shortly be finished. The 0 gauge layout is also being extended by the addition of two new termini which are at the moment in various stages of construction. A popular part of club activities is the 5 in. gauge live steam track, which is shortly to be lengthened by a further 20 ft. Further details of club activities, and enquiries regarding membership, are obtainable from the Hon. Secretary, Mr. J. F. Saville, of 3 Stickleton Close, Greenford, Middx.

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SALES

• Private owner, wagon drawings, many lots railway magazine, "M.M.'s" 1938, instruction manuals, signalled layout plans. All areas. S.A.E. lists. Matthews, 11 Manor Park Crescent, Edgware, Middx.

• "M.M.'s" December 1959 - February 1965. Offers? Hague-Smith, 71 Lower Market Street, Broadbottom, Via Hyde, Cheshire.

• Hornby "00" 3-rail transformer, many accessories, £16 o.n.o. Madigan, 251 Crofton Road, Orpington, Kent.

• "M.M.'s" Jan. 1942 to Feb. 1965 (three missing), £5 o.n.o. D. Whitehouse, 1 Paddington Road, Birmingham 21.

• Ten Hornby all-steel curves, as new, £3. Anderson, 60, Homer Court, Bexleyheath, Kent.

• "Meccano Magazines", Sept. 1920 to Nov. 1931. Few missing. Offers to: Edward Hetherington, Headgate, Roadhead, Carlisle.

• "M.M.'s" June 1960-Oct. 1964, 35/- "B.O.P.'s" May 1960-Jan. 1962, 10/- . Squires, 7 Mill Hill Gardens, Shoreham, Sussex.

• For Sale: 150 Dinkys, etc. All in good condition. S.A.E. for details. P. Heywood, Barnard Castle School, Barnard Castle, Co. Durham.

• Pre- and post-war Dinky Toys for sale. S.A.E. for details. 288 Humberstone Road, Leicester.

• Obsolete Meccano literature. Hackett, 4 Lake Lawn, Well Road, Cork, Ireland.

• "M.M.'s" May 1949 to July 1953. Offers? S.A.E. Williams, 17 Ivanhoe Drive, Kenton, Harrow, Middlesex.

• Dinky Corgi and some foreign models. S.A.E. T. Wilson, 269 Edgwarebury Lane, Edgware, Middlesex.

• Collection pre-war Dinkys, etc. Large S.A.E. for lists; also Airfix Mags. June 1960-May 1964, 26/- plus postage. Wootton, 30 Barchington Avenue, Torquay.

• "Meccano Magazines", 1930-1964, various, some complete years bound volumes. All perfect condition. Separate issues available if required. Few super model leaflets ext. also for sale. S.A.E., 67 Holly Road, Twickenham.

• "M.M.'s" (102) Feb. 1956 to Oct. 1964 (Feb. 1959 missing). All in excellent condition. Offers? P. A. Storey, 47 Shannon Avenue, Lincoln.

• Tri-ang 30 ft. overhead wiring and pantograph locomotive. Good condition, £3. Browne, 9 Queen's Crescent, Edinburgh 9.

• Dinky and Corgi Toys. S.A.E. details. Quatermass, Rosebrook, Watery Lane, Monmouth, Monmouthshire.

• For Sale: 1d. Cape of Good Hope Triangular, £25. P. Williams, Patyat, Kemble, Nr. Cirencester, Glos.

• Tri-ang super 4, series 3 track, reasonable condition. S.A.E. details. Sharp, 19 Church Road, Lytham, Lancs.

• "Meccano Magazines", June 1960 to December 1963. £1. B. Shafe, 97 Alma Road, Enfield, Middx.

• M-stamps (McManus). British, Commonwealth, world discount approvals, packets, value, gifts. Fourpence stamp brings first great selection. Wants accepted. 1 Roker Terrace, Roker, Sunderland, Co. Durham.

• Large stock Tri-ang "00" with super 4 track, S.A.E. for details. Paterson, 54 Fleet Road, Rochester.

• Packets of 100 mixed stamps 4/- each. Write to C. D. Clark, 5 Tweedy Road, Bromley, Kent.

• Hornby "0" gauge train set, 18 curved rails, 13 straight rails, 4 sets points, 3 engines, 2 coaches, transformer, various trucks and accessories. £8 o.n.o. James, Meadow View, Clapham, Bedford.

• Over 2,000 world stamps in new "Royal Mail" stamp album, £5 o.n.o. J. Upton, 11 Nether Gardens, Wirksworth, Derbyshire.

• "M.M.'s", railway magazines, prototypes and model; model railway oddments; S.A.E. lists. 42 Sunnydell, St. Albans, Herts.

• Bargain stamp approvals. Suitable for beginners and medium collectors. R. Burton, Braeside, Fowdon Lane, Newcastle-on-Tyne 3.

• Br. Cols. and foreign, wants invited. Advertiser, 15 Queenshill Avenue, Leeds 17.

• For Sale: Scalextric Chicane, Grande bridge, three cars. Other extras. £8 o.n.o. 67 Park Grove, Henleaze, Bristol.

WANTS

• Obsolete Dinky Toys, etc. Highest prices, single or collections. Pinnock, 6 Stream Farm Close, Lower Bourne, Farnham, Surrey.

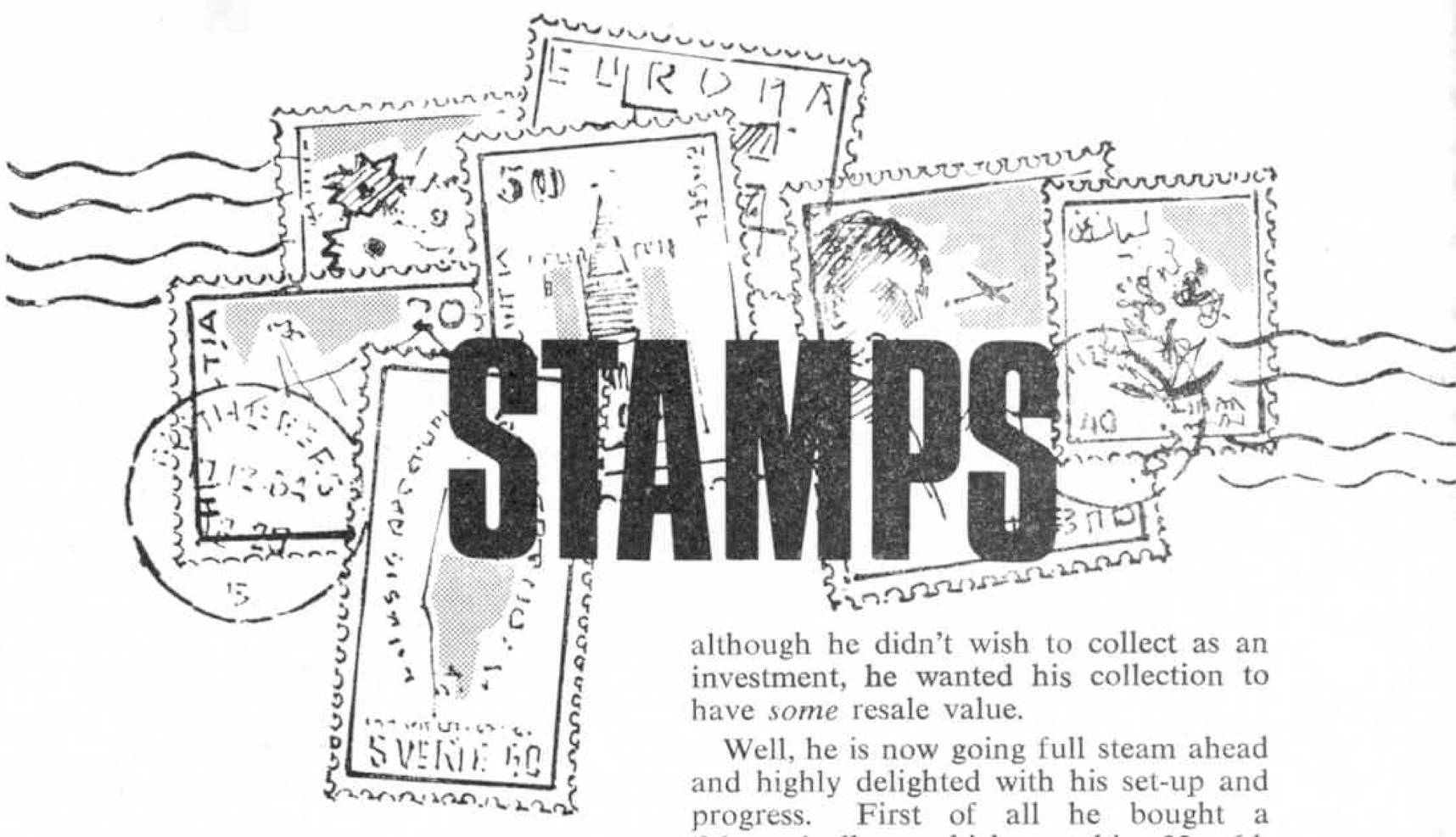
• Pre-war mechanical toys, especially trains, no objection to faults if repairable. Butlin-Edwards, 1 Chesham Crescent, London, S.E.20.

• Wanted: All issues "M.M." before 1950. Also, used or obsolete Meccano parts, leaflets and related items. Please quote in U.S. dollars, including packing and shipping. H. Schenck, RD 4, Potsdam, New York, U.S.A.

• Pre-war Dinky Toy motor cars. Top prices paid, or exchange. R. Mitchell, 49 High Street, Queensbury, Bradford, Yorks.

• Enthusiast requires building details of advanced models/mechanisms, particularly an astronomical clock. Briggs, 25 Burnbreck Gardens, Wollaton, Nottingham.

Continued on page 47



WITHOUT a doubt, the British Post Office has lagged far behind most other countries of the world when it comes to the question of special issues of stamps. In fact, some collectors may remember the fuss they made when it was suggested in the House of Commons that a stamp or stamps should be printed to mark the centenary of the first stamp of all, the 'Penny Black'.

Briefed by his permanent officials, the then Postmaster General stated that there wasn't enough time to prepare such an issue as the centenary in question was only six months away. Finally, after much pressure, a set of stamps was issued, but they proved to be so dull and uninspiring, that it would have been better if they had never been prepared at all. They certainly did credit to nobody.

Since then, other special issues have been suggested, but until now it has been very hard work to get the Post Office to produce them. The change came about quite recently and the ex-P.M.G. Bevins had a good deal to do with the adoption of a more modern outlook. Now the very institution which fought so hard whenever new stamps were suggested, is boasting about the hundreds of thousands of pounds profit they made out of the 'Shakespeare' issue. Of course, they didn't make anything of the kind, for they still have a lot to learn! As a matter of fact, a very large percentage of the stamps bought by over enthusiastic collectors at the time of the issue will ultimately get used for postage.

However, so heartily have the authorities entered into the game, that the present P.M.G. has announced that special issues must be kept within reasonable bounds and he intends to limit the number to eight issues during the next twelve months. Apparently, all kinds of events will qualify for a special stamp issue, although Royal events, which once took pride of place, are not to feature. Anyhow, the quickly growing number of collectors who go in for modern G.B. stamps are in for a wonderful time, for they enjoy these inexpensive special stamps, which mark events in which they are interested.

Popular Themes

There are, of course, many readers of the M.M. who collect stamps with engineering subjects as their theme, so the pair of stamps issued last November by Czechoslovakia are a very pleasing addition to their collection. Without a doubt, that country has great engineering traditions and the stamp illustrated depicts, I think, one of their many triumphs in that field. I believe it shows a locomotive built at the turn of the last century, which put up a speed of 148 kilometres-per-hour. A record which stood for thirty years.

Czechoslovakia also has some of the finest stamp designers in the world and one or two collectors I know, who collect these issues, have really wonderful collections to show.

Southern Arabian Federation

By the time these lines appear in print, an interesting set of stamps should have been issued for use in Southern Arabia, (April 15). The Crown Agents who handle such things have recently released a leaflet regarding the stamps in question and they give some very interesting details. They tell us that the origin of the Federation makes a heartwarming story, for the establishment of authority inside the States reconciled tribal groups torn by age-old feuds and that alone surely gives this new stamp issue, which sets a seal on the Federation, a special status. The set goes up to a 1 dinar (roughly £1) but a short set will be available and when it appears, it need only cost a shilling or two.

Starting Up

I am often asked by would-be collectors how they can get started on the right lines. It is very necessary that they should start right, for if they get over enthusiastic, as they sometimes do, they may well spend more money than they wish.

Recently, a reader with set plans requested further advice. He was a young man, who wanted to go in for Commonwealth stamps of the present reign and although he didn't wish to collect as an investment, he wanted his collection to have *some* resale value.

Well, he is now going full steam ahead and highly delighted with his set-up and progress. First of all he bought a 'Merton' album which cost him 32s. 6d. Next a Commonwealth QEII Catalogue, which added another 10s. 6d. to his outlay and a packet of good, folded stamp mounts and stamp tweezers. All are basic essentials.

Next, he decided to practice hand printing. He got a 'J' nib pen (ballpoint pens are useless unless you are really expert) and he was surprised how soon he picked up the knack of neat lettering. This enabled him to print the names of the countries, quite attractively, at the top of each page.

At the moment, he is busy buying what current sets he can afford up to the 1s. value (each costs round about 3s. to 4s.) and, later, he will go in for the higher values. He is only collecting mint, but if you preferred used, all the same rules would apply. I'll go into the subject again at some later date.

Tip of the month

The stamps I am going to suggest this month, are never likely to become rarities, but they are so cheap and attractive, that these two factors alone should be enough to tempt buyers. I refer to the modern, special issues of India. At odd times you get a rather more expensive stamp, but generally they are only 15 naya Paisa items and looking at valuations in the Commonwealth QEII Catalogue for the past year or two, they are only priced at a few coppers each.

If you want to make a nice little show at small cost, think about modern Indian stamps—both mint and used.

by F. E. Metcalfe

On the left are two very interesting releases from 1, the Federation of South Arabia and 2, Czechoslovakia. On the right, a sample of the Indian stamp releases.

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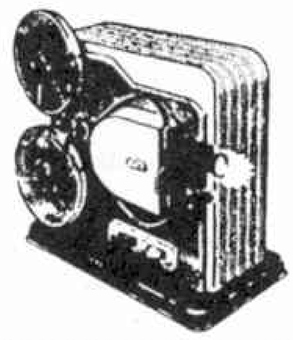

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Continued from page 44

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- Parts 119, 129, 131 Roller Bearing 167, also pre-war "Meccano Magazines" and literature. Good prices paid. K. Bartholomew, 10 Bentley Street, Cleethorpes, Lincs.
- Good condition, Dinky Toys numbers 412, 433, 991. Edis, Duck Street, Elton, Nr. Peterborough.
- Pre- and early post-war Dinky Toys. Exchange or buy. David Stuart, 6917 DeLongpre, Hollywood, Calif. 90028, U.S.A.
- Dinky Buses, in reasonable condition. S. Andrews, 114a Crwys Road, Cathays, Cardiff.
- Meccano outfit 10. State price and condition. Will collect 50-mile radius Oxford. Lupton, 35 Stratfield Road, Kidlington, Oxford.
- Steam traction engine ⅜ in. scale, coal or spirit fired. Denman, 8 Greenways, Hertford, Herts.
- Dinky or Matchbox Ford Prefect and Austin A30. Send price and details to 33 Carmel Gdns., South Road, Norton, Stockton-on-Tees, Co. Durham.
- Collector requires two Dinky Toy models of Austin A35's. Please state price required. D. Greenslade, 6 Orchard Close, Hele Manor, Barnstaple.
- Farthings: Victorian, 1/3: Edwardian, 1/-. Collector, 57 Hornsey Lane Gdns., London, N.6.
- E20 20 volt reversing motor, working order. State price. A. Willis, 72 Leyland Road, Burnley, Lancs.
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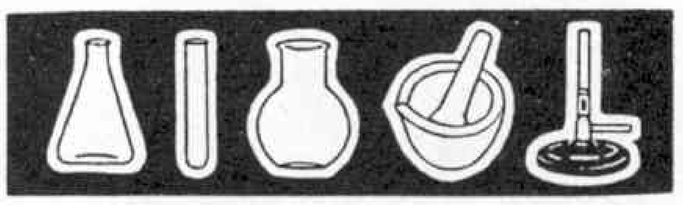

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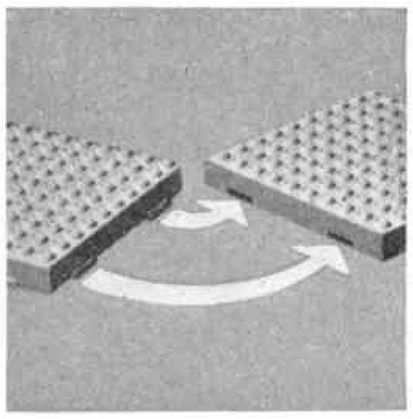

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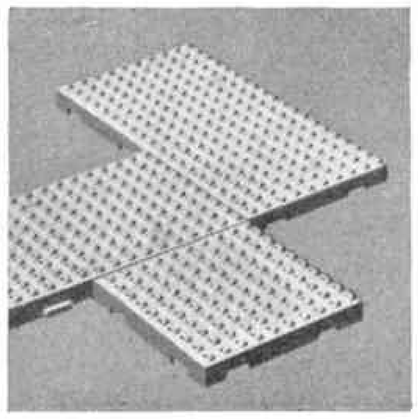
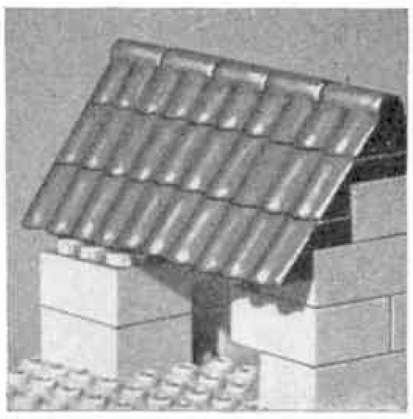
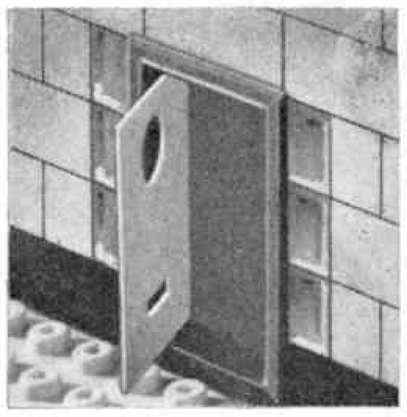




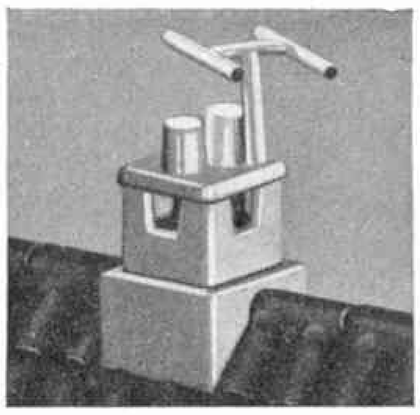
roofs that have tiles and look just like real roofs

windows that open and shut



doors that are hinged to open and close

neat little bay windows with flowers in a bowl



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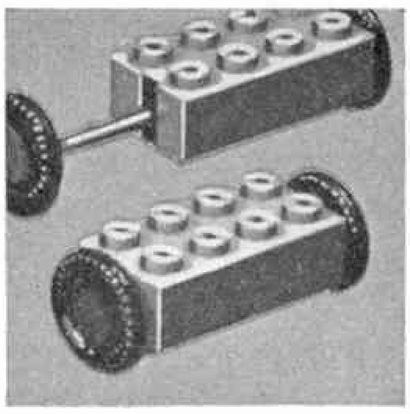

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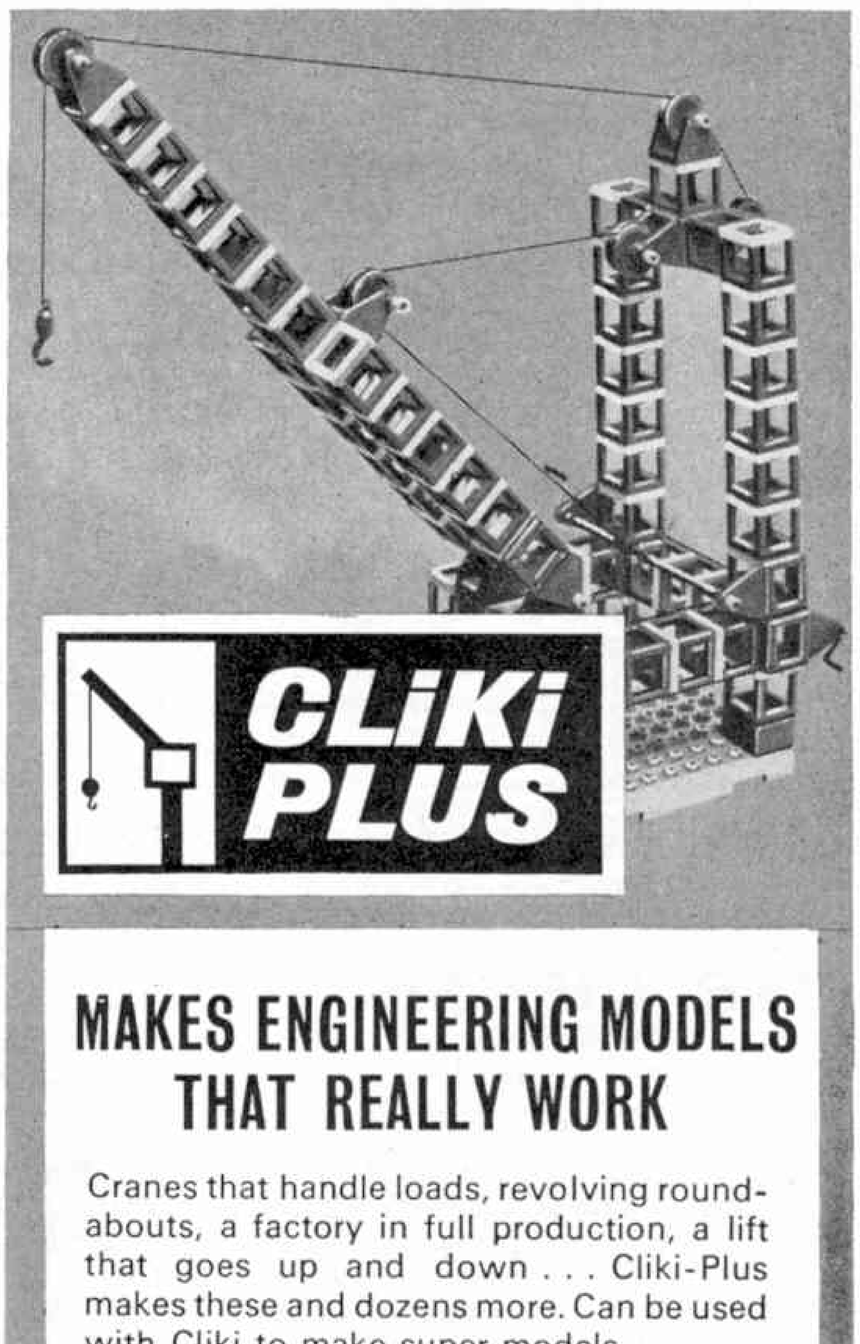

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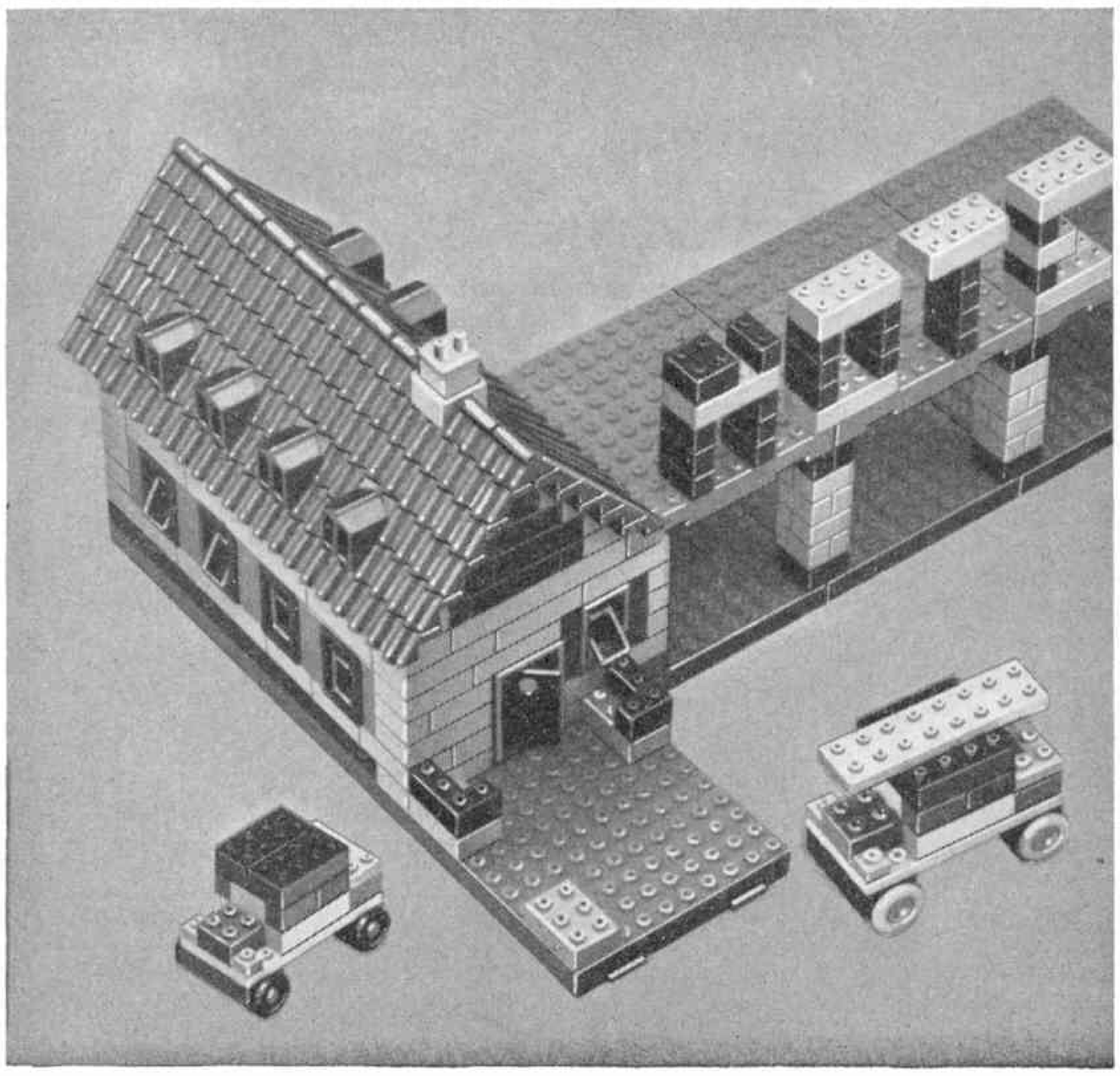

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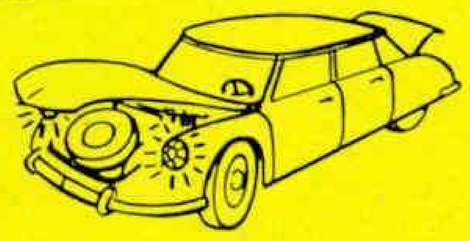

Opening Bonnet Opening Boot

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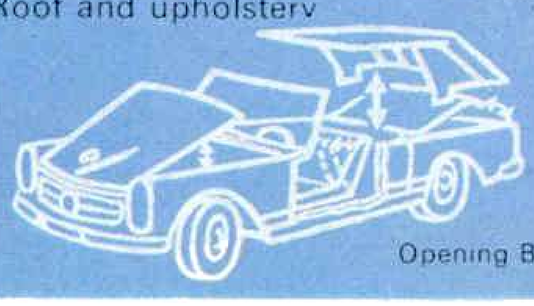
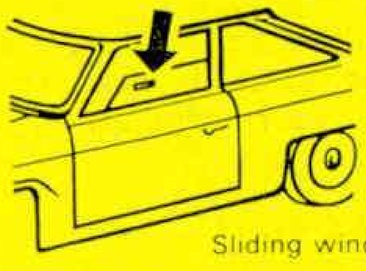


Opening Bonnet Opening Boot

Model No. 516. 3$\frac{15}{16}$" long. U.K. Price **11/6**

PANHARD 24 C

Another quick one to bother the French Gendarmes! ● Sliding windows ● Special headlights ● Prestomatic steering ● All-round suspension ● Windows, seats and steering wheel ● Dark Grey with Red upholstery and rear lights.



Sliding windows

Model No. 524. 3$\frac{15}{16}$" long. U.K. Price **7/11**

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